University College London

Doctor in Education (Dual Award)

THESIS

The Impact on Tan Tock Seng Hospital's Teaching Culture of Transforming into an Academic Health Centre

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Declaration of Authorship and Academic Integrity

I, Kum-Ying Tham confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Name	Signature	Date

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Abstract

Tan Tock Seng Hospital (TTSH), Singapore has a commendable "teaching culture" that teaches medical students well. The first research question is to understand how the teaching culture has been built in TTSH. In 2009 the Nanyang Technological University (NTU) invited TTSH to be its partner to start a new medical school, transforming TTSH into an academic health centre (AHC). The second research question is, "What is the impact on TTSH's teaching culture of transforming into an AHC?" Qualitative methods (fieldwork, observations, interviews and review of archival documents) are used to answer these research questions.

Complexity theory and social worlds theory are used to theorise the findings. There are five eras when successive orders of teaching emerged: bedside teaching, embedding students in patient care, the doctor as a medical expert cum teacher, the whole-of-medical-fraternity championing of education and co-owners of the education process. The progression of boundary objects parallels these emergences and TTSH's growing sophistication in fulfilling its education mission: from teaching medical students to providing quality clinical education to ensuring a product is fit for purpose. Positive feedback loops that entrenched the teaching culture are balanced by stabilising mechanisms, making the culture more robust.

The AHC transformation is accomplished via sequenced steps that coalesced into a choreographed transition. Internally TTSH ensures that the teaching culture continues to flourish. To external stakeholders, TTSH's engagement centres on legitimisation of its version of a product fit for purpose as most befitting for Singapore. Boundary workers between hospital and school negotiate skilfully to reinforce boundaries for their worlds and the other world. Research, dormant for a decade, began its revival when Dr W became a boundary worker between leaders and researchers. Through sequenced steps the research culture is being rebuilt and TTSH's research capability moved to become an equal with NTU-Lee Kong Chian School of Medicine.

(Word count = 302)

Contents

Word count:

Abstract: 302

Main report: 42,471 including footnotes but excluding bibliography, annexes, personal statement and appendix.

Acknowledgements

The work presented here is possible because of the invaluable support and help from:

- Dr Bryan Cunningham, my supervisor from Institute of Education, UK,
- Dr Benjamin Wong, my supervisor from National Institute of Education, Singapore,
- My teachers, bosses and many colleagues from Tan Tock Seng Hospital and National Healthcare Group, Singapore, especially Professor Chew Chin Hin, Professor Chee Yam Cheng, Professor Philip Choo, Professor Low Cheng Hock, Associate Professor Thomas Lew, Associate Professor Leong Khai Pang, Dr Lim Wee Shiong, Dr Daniel Chew and Dr Endean Tan; Ms Yvonne Ng, Dr Winnie Teo, Ms Kam Foong Har, Ms Sandy Tan and many others who are too numerous to name,
- My family: Mum, siblings, sibling-in-laws and nephews
- My late husband, Clive who had walked this journey with me till his untimely demise, and

The one true God to whose Name I dedicate this work.

The Impact on Tan Tock Seng Hospital's Teaching Culture of Transforming into an Academic Health Centre

Chapter I. Introduction

This chapter presents the research questions, an overview of the organisation of this report, the background that led to these questions, and my role in this study.

(1) Research Questions

The research questions that this study seeks to answer are:

(i) How did Tan Tock Seng Hospital (TTSH) establish a teaching culture?

(ii) What is the impact on TTSH's teaching culture of transforming into an academic health centre?

The key word "culture" requires definition. Among many definitions, the one by Schein (2010 p.18) will be adopted because it is most widely cited generally and particularly in healthcare studies (Davies, Nutley & Mannion, 2000; Bellot, 2011):

"The culture of a group can now be defined as a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore to be taught to new members as the correct way to perceive, think, and feel in relation to these problems."

The teaching culture in TTSH is a positive culture: one that is safe and welcoming to students and junior doctors as they learn to become good doctors. Answering the above research questions is important for various reasons. Firstly by understanding how the teaching culture has been established, TTSH can identify and consolidate those elements that will preserve and strengthen this culture in the face of competing demands from other missions. Secondly three new hospitals will be built in Singapore over the next decade and all are expected to provide clinical teaching to medical students and junior doctors. Their leaders are asking - and TTSH want to facilitate their ability to put in the necessary support to develop and sustain a teaching culture. TTSH would be able to help only when we are clear about the elements for success. Finally challenges facing academic health centres (AHC) are well documented (Blumenthal, Campbell & Weissman, 1997; Whitcomb, 2005;

Cooke, Irby & O'Brien, 2010; Pardes and Pincus 2010; Fuchs, 2013; French, Ferlie & Fulop, 2014). As a novice AHC TTSH would do well to examine these challenges, how its new identity as AHC may impact on its teaching culture, and prepare to adapt this culture to enhance its growth as AHC without losing its uniqueness.

(2) Organisation of Report

The definition by Schein nods towards a social constructivism perspective, a view whereby "…individuals seek understanding of the world in which they live and work. Individuals develop subjective meanings of their experiences…The goal of research is to rely as much as possible on the participants' views of the situation being studied." (Creswell, 2009, p.8). This perspective will be explored further in Chapter II Literature Review and Chapter III Perspective and Methodology. The Literature Review chapter discusses the prevailing theories on organisations and culture with a focus on those applied to healthcare, the academic health centre and its mission.

Culture can be examined at three levels (Schein, 2010):

i) Artefacts which are observable and tangible structures and processes e.g. TTSH's founder and his story, Best Teacher Awards etc.,
ii) Espoused beliefs and values which are the expressed goals which may or may not be congruent with the observed behaviour e.g. the pledge by Clinical Heads to support undergraduate medical education at times cannot be honoured because of shortage of doctors to meet Ministry of Health performance indicators, and
iii) Assumptions, understanding and thought patterns that are wide spread and taken-for-granted in the organisation and tend to resist confrontation and debate e.g. candidates for the post of TTSH Chairman, Medical Board (i.e. Chief Medical Officer) must have "grown up" i.e. trained, worked and risen through the ranks in TTSH, and must cherish and build its rich traditions especially its teaching culture.

Since TTSH's founding in 1844 many generations of medical students and young doctors have experienced its teaching culture. "Any social unit that has some kind of shared history will have evolved a culture. (And)…the most fundamental characteristic of culture is that it is a product of social learning." (Schein, 2010, p.17) Hence an examination of

artefacts, espoused values, and basic assumptions, all of which needed sufficient time to build up and become a part of TTSH, would provide insight into the teaching culture. Therefore an ethnographic design is chosen to answer the research questions – an approach that I will elaborate in the Perspective and Methodology chapter.

The findings are presented in Chapter IV Results and will illuminate the building of the teaching culture in TTSH and the impact of transforming into an academic health centre on its teaching culture. Due to its large amount I will concentrate on presenting the findings and defer theorising to the following chapter. Chapter V Discussion and Conclusion links the findings with the theories in the literature and concludes with answers to the research questions. This dissertation ends with bibliography, Annexes A and B relating to informant interview, Annex C Scheme of Associate Deans and Annex D List of TTSH Clinical Heads meeting minutes. To differentiate these meeting minutes from in-text citations, they are placed within square brackets e.g. [CH 1992] = TTSH Clinical Heads meeting minutes, 1992, which is listed in Annex D and available on request. I have embedded footnotes to explain persons and events to provide background information.

(3) Background

(3.1) Top Teaching Hospital for Medical Undergraduates

The education of year 1 and 2 medical students takes place in the classroom of the university and then moves into the clinics and hospitals for clinical training as the students prepare for graduation and work as young doctors. Between 1905 and 2007, Singapore had only one medical school - the National University of Singapore Yong Loo Lin School of Medicine (YLLSoM) and its predecessors. As the only medical school for more than a century, YLLSoM has enjoyed the privilege of sending its medical students to all public hospitals in Singapore for clinical training, for which there are seven such affiliated teaching hospitals. The buzzword among many generations of medical students and young doctors is that among these hospitals, TTSH has the strongest culture that welcomes learners and promotes teaching, making it an attractive place for learning. They named this the “teaching culture”, an accolade that TTSH is proud of, and a “*huge heritage that we must preserve”* (Dr E, personal communication, Jul 22, 2014).

The doctors of TTSH are reputed to be passionate about teaching and teach well. The medical students voted TTSH as top teaching hospital for academic years 2008-09, 2009-10 and 2010-11 [CH 2010f, 2011g]. From 2010 Yong Loo Lin School of Medicine (YLLSoM), National University of Singapore surveys its new graduates annually to find out their experience of medical school. Some of the questions are specific to learning in the hospitals e.g. “How welcoming are the following hospitals to medical students?” and “How would you rate the undergraduate teaching culture in the teaching sites? (I.e., willingness to teach, creating a safe learning environment, proactive in mentoring and facilitating students' learning etc.)” Between 2010 and 2014, TTSH was named as the top teaching hospital except for one year. The results from academic years 2013 and 2014 surveys are shown in Figure 1.1 and 1.2 where the response rate for each year is more than 90%. More than 90% of new doctors indicated that TTSH was “welcoming” or “very welcoming” to students (Figure 1.1).

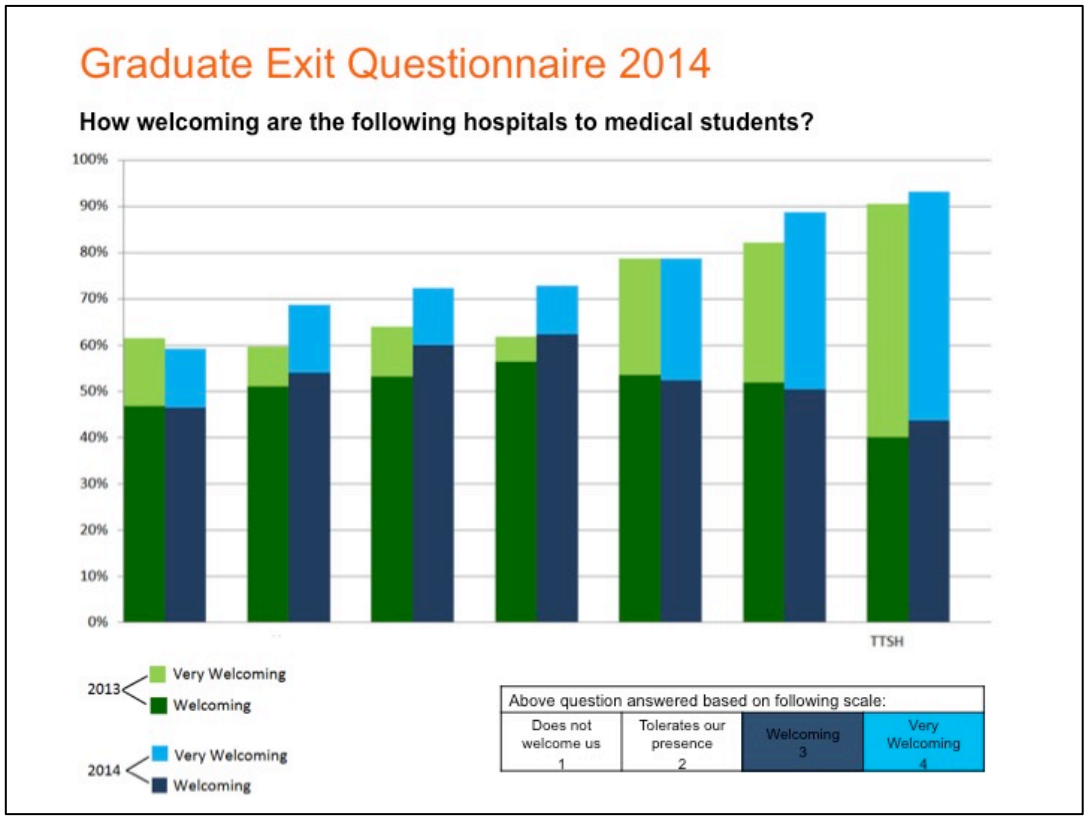

Figure 1.1 YLLSoM graduates’ response to the question “How welcoming are the following hospitals to medical students?” Each pair of bars represents a hospital.

In Figure 1.2 more than 90% of the respondents rated TTSH’s teaching culture as “good” or “excellent”.

When such comparison was published, the oft-repeated question by medical school and hospital leaders was: how did TTSH (founded in 1844, 1500 beds) build a teaching culture that was not evident in two other public hospitals of similar history and comparable size - Singapore General Hospital (founded in 1821, 1600 beds) and Kandang Kerbau Women's and Children's Hospital (founded in 1858, 830 beds)? An examination of theories of organisation and culture in Chapter II may provide a glimpse to possible explanation.

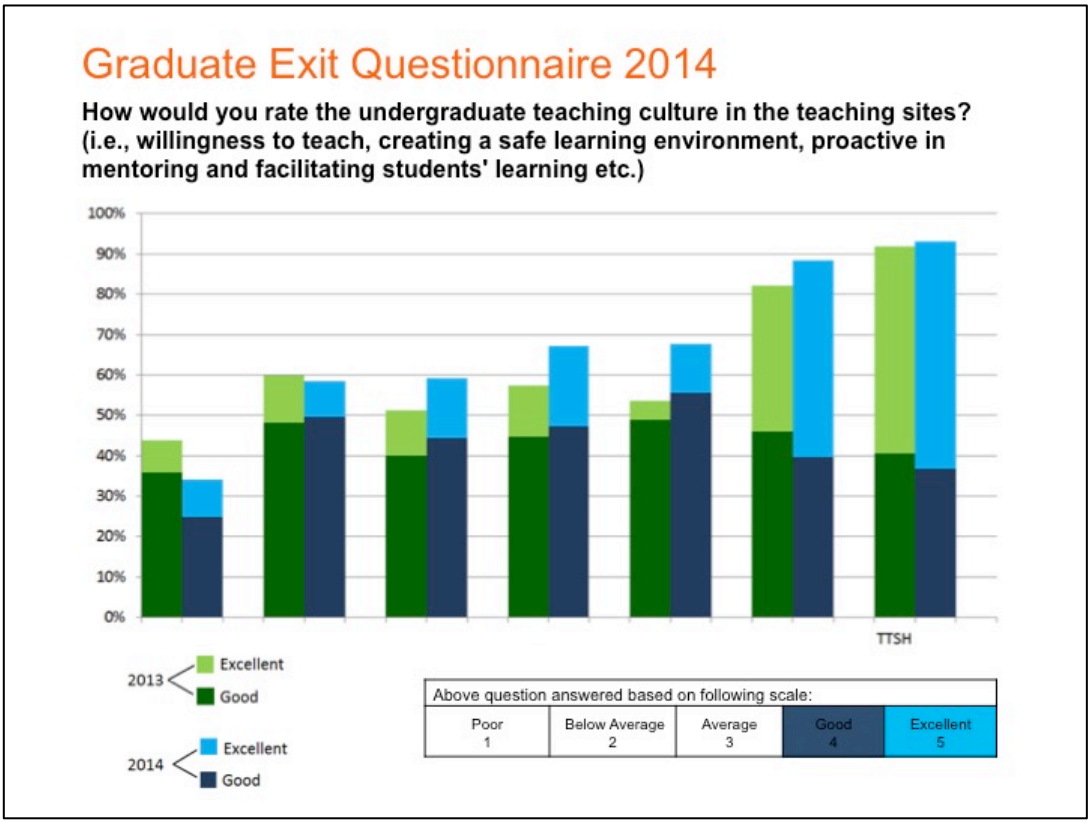

Figure 1.2 YLLSoM graduates' response to the question "How would you rate the undergraduate teaching culture in the teaching sites?" Each pair of bars represents a hospital.

(3.1A) "Upstream" Activities of Undergraduate Medical Education

Up till 2011 TTSH's role in YLLSoM was to teach the students in their clinical placements. As the second largest among the seven public hospitals, TTSH shoulders approximately 22% of YLLSoM's clinical education load (unpublished data). However beyond clinical teaching TTSH had little role in the "upstream" activities of student education e.g. learning needs analysis, curricular design and development, assessment and examination system design and development, or pedagogical or resource decisions. In

addition to not contributing to “upstream” activities, communication between YLLSoM and TTSH was also suboptimal. This was an unsatisfactory state because some decisions made by YLLSoM related to curriculum, examination, pedagogy or resource had the unfortunate consequence of impacting on TTSH’s teaching negatively because of lack of prior consultation with the hospitals. TTSH provided post hoc feedback but YLLSoM’s ability to respond in a timely or appropriate manner was a concern.

(3.1B) Steep Learning Curve

A change in deanship in YLLSoM in 2011 changed that. Several TTSH doctors were invited to YLLSoM’s curriculum, examination and pedagogy committees – a move that was welcomed by TTSH leaders. For these doctors, however the learning curve was steep on three fronts:

(i) Administratively, the two organisations were different. TTSH is a hospital, accountable to the Ministry of Health, with performance indicators related to patient care. YLLSoM is a school in the university, accountable to the Ministry of Education, with performance indicators related to student education and research. These doctors faced the daunting task to understand and work in a different administrative system and learn a new language – the language of education and academia.

(ii) Educationally, the theoretical foundation for bedside clinical teaching is different from that for “upstream” activities e.g. curricular, and assessment and examination system design and development. These TTSH doctors felt frustrated and inadequately prepared for their new role because they had little theoretical foundation for these aspects of education.

(iii) Ambassadorship – these doctors were TTSH’s representatives on YLLSoM’s committees and vice-versa i.e. YLLSoM’s representatives in their TTSH departments. Their ability to be good ambassadors representing the interests and issues fairly and transparently for both organisations became a personal struggle and a source of conflict and stress.

These doctors’ experiences with YLLSoM would later inform the decisions made by TTSH about the need to prepare doctors adequately for the educator role and work in the new medical school.

(3.2) Postgraduate Medical Education

After the medical student has graduated, TTSH's teaching and education role continues for this new doctor in his/her postgraduate journey. In 2010 Singapore Ministry of Health (MOH) revamped the postgraduate training system (Ministry of Health Holdings [MOHH], 2015) and adopted the US-based Accreditation Council for Graduate Medical Education-International (ACGME-I) system. The ACGME-I is "a non-governmental organization that accredits graduate medical education (GME) programs outside of the United States. Its mission is to improve health care by assessing and advancing the quality of resident physicians' education through accreditation to benefit the public, protect the interests of residents, and improve the quality of teaching, learning, research, and professional practice." (ACGME-I, 2015)

ACGME-I sends auditors to visit the training sites to assess the programmes for accreditation. Based on the auditors' recommendation, training programmes are given different accreditation cycle length e.g. in Figure 1.3 almost half (48%) of NHG's 21 programmes are given a 4-year cycle length, the longest that ACGME-I will grant. A long cycle length indicates that the programme has satisfied many or all of ACGME-I's requirements and hence the time interval to the next visit will be longer.

In the 2010 and 2012 accreditation exercises NHG of which TTSH is the flagship hospital, emerged as the top performing Graduate Medical Education system compared to two others in Singapore (unpublished data). For academic year 2013, NHG has the largest number of programmes given a 4-year cycle length and smallest number of programmes with a 2-year cycle length (Figure 1.3).

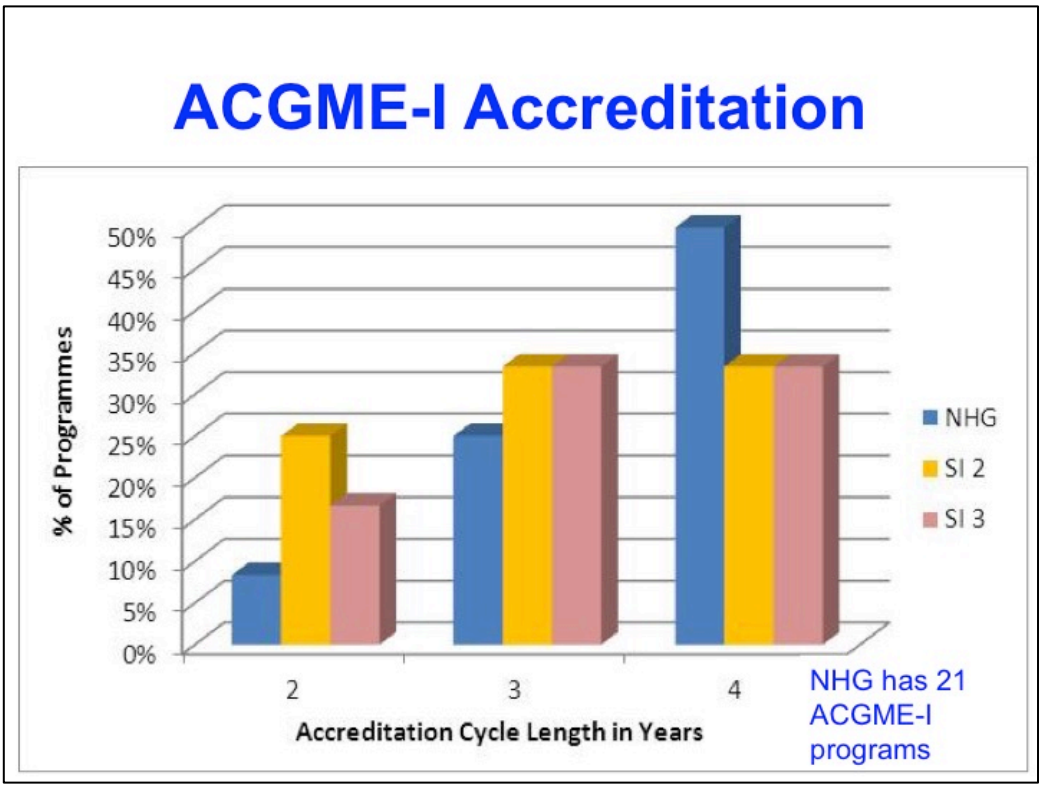

Figure 1.3 Graduate Medical Education Programme Accreditation Cycle Length for AY2013

Hence, from the perspectives of undergraduate and postgraduate medical education, there is support for the view that TTSH has a teaching culture.

These successes led to visits and requests for consultations by other institutions' leaders, clinician educators and administrative teams and an invitation from ACGME-I to facilitate the launch and implementation of Graduate Medical Education system in a Middle Eastern country. The visitors want to know, what has TTSH put in place to bring about a teaching culture? This prompted introspection in TTSH to ask, "How did we arrive at such a teaching culture?"

(3.3) TTSH's Foremost Mission

Lest the impression be created that TTSH's foremost mission is teaching and education of students and young doctors, that is not so. As a public hospital, TTSH is accountable to the Ministry of Health and ultimately to the people of Singapore - healthcare and patient care remains its foremost mission. However MOH supports two other missions that public hospitals take on: (i) education of the next generation of healthcare professionals and (ii) research and innovation to discover new things and to find better ways of delivering care. Each of Singapore's seven public hospitals fulfils these two missions to a varying

degree. For TTSH, through a combination of factors and long years of culture building and reinforcement, teaching and education has risen to the same level of prominence as patient care. An account of this will be detailed in the Results and Discussion chapters, the link between events in the account and theories of organisation and culture.

(3.4) Invitation to a Strategic Alliance

(3.4A) An Affiliated Teaching Hospital

Though TTSH is an affiliated teaching hospital for YLLSoM for five decades, TTSH is not part of the National University Health System, which is an academic health centre. The Association of Academic Health Centres provides this definition, “An academic health centre is an accredited, degree-granting institution of higher education that consists of (1) a medical school, (2) one or more health professions schools or programs and (3) an owned or affiliated relationship with a teaching hospital, or health system, or organised health care provider” (Wartman, 2007). The National University Hospital, Singapore bears the name of the university and is part of the National University Health System where medical school and hospital share a joint governing board. All other hospitals including TTSH are affiliated teaching hospitals but not part of the academic health centre. Therefore up till 2009, “academic health centre” is not part of TTSH’s identity.

(3.4B) NTU’s Invitation

Things changed in 2009 when TTSH and its parent organisation the National Healthcare Group (NHG) were invited by the Nanyang Technological University (NTU), Singapore to form a strategic alliance: to be its principal teaching and healthcare partner for the medical school that NTU hoped to start (Imperial, 2010; NTU, 2010). In addition to teaching medical students NTU and the new medical school invited TTSH-NHG to be one of its research collaborators as well. The invitation was accepted. This school was later named the Lee Kong Chian School of Medicine (LKCMedicine).

With this collaboration, TTSH as the flagship hospital in NHG became an academic health centre. Wartman (2007) stated, “The topic of academic health centres being a fully integrated enterprise, including the clinical component, under a single leader and a single board is now emerging as a major issue.” In the Literature Review chapter some examples of relationship between hospital/healthcare institution and medical school will illustrate

factors that enhance productive relationships. NHG and TTSH deliberated on the relationship with LKCMedicine i.e. should the relationship be one of full integration, inter-dependence or non-interference? (French et al, 2014) Having learnt from the experience with YLLSoM, the ability to influence decisions on curriculum, pedagogy, assessment and examination, and resource allocation “upstream” was invaluable. Hence a relationship of non-interference was rejected outright because NHG and TTSH viewed the ability to influence LKCMedicine to be critical to its own future and development.

Unlike the National University Health System that has a joint governing board for school, hospital and health system, LKCMedicine and NHG opted to have separate governing boards. Instead of full integration, inter-dependence is preferred, represented by appointment of leaders in each other’s governing board: the Group Chief Executive Officer, NHG is a member of the LKCMedicine board and the Dean of LKCMedicine is a member of the NHG board.

(3.4C) Cautious Optimism

The LKCMedicine partnership catapulted TTSH into the limelight as a critical component of Singapore’s newest academic health system, impacting on TTSH’s culture and ultimately, identity. Generally NHG and TTSH have welcomed the alliance and viewed their new identity with cautious optimism. Becoming an academic health centre is prestigious and broadens NHG’s and TTSH’s network of strategic partners. “Medical schools, like the universities of which they are a part, are knowledge-building organizations” (Cooke et al, 2010 p.198; see also Association of Academic Health Centers [AAHC], 2009). Not being a part of the National University Health System meant that despite TTSH’s substantial contribution over many years, it had received only marginal acknowledgement from YLLSoM. Therefore the alliance with LKCMedicine represents opportunities for recognition and legitimisation of TTSH’s contribution towards education and kowledge-building in addition to its core mission of healthcare delivery.

The partnership also impacted on TTSH’s research efforts: (i) it gave TTSH the reason to overhaul its research strategy and put in much more resources and (ii) it brought the promise of expertise e.g. scientists, laboratory personnel and “equipment” i.e. laboratory

space, software etc. to TTSH such that together with LKCMedicine, the chances of securing larger grants were enhanced.

(3.4D) Inter-dependence

The cautious optimism with which NHG and TTSH greeted the proposed alliance was accompanied by discernable anxiety and concerns, especially among the doctors. These concerns were multi-layered and complex, which will be explored in the Results chapter. These concerns deserve an introduction in this chapter because (1) some studies in the Literature Review chapter will deepen understanding of these concerns and (2) these issues provide essential background information for the findings in the Results chapter.

(i) Goals, Roles and Responsibilities

(a) NHG's and TTSH's corporate goals, which have financial implications, have suddenly expanded. NHG knows the costs of delivering healthcare but it has no experience of operating a medical school to deliver education and research. This galvanised NHG-TTSH to search for fair and sustainable funding source for its education work.

(b) The roles and responsibilities of NHG-TTSH leaders, heads of departments, clinician-educators and clinician-researchers in relation to new colleagues from LKCMedicine and NTU need clarification.

(c) LKCMedicine and NTU have no experience at operating a medical school, let alone a large healthcare system like NHG – a risk that is not acceptable to NHG and MOH. NHG is willing to help build the medical school but not at the expense of jeopardising its own organization and performance.

(d) TTSH, of which the Communicable Diseases Centre is a constituent, and its history of successful management of several emerging infectious disease outbreaks on behalf of MOH (e.g. SARS [Severe Acute Respiratory Syndrome], Tham, 2004) has an irreplaceable role in MOH's national strategy. MOH will not agree to a joint board between LKCMedicine and NHG that may compromise TTSH's ability to respond effectively to the next infection that threatens the nation.

(ii) Talent

(a) Like other public hospitals, TTSH has a shortage of doctors and the new responsibilities of an academic health system will probably worsen the situation at

least temporarily.

(b) TTSH had also learned from the YLLSoM experience that the doctors' knowledge and skills to meet the demands of "upstream" education activities, education leadership and academic scholarship would need to be addressed quite urgently.

(c) The cadre of talented and dedicated clinician-teachers and educators that upholds the teaching culture will be shared with LKCMedicine – a dilution of TTSH's power base unless NHG-TTSH puts in more resources to ensure that this power base remains stable.

(iii) Relationships

(a) NHG-TTSH accepts that as a strategic partner, LKCMedicine's views on strategic directions, priorities and resource allocation should be taken into consideration but is not prepared to risk its clinical agenda being hijacked by the school or university.

(b) While the strategic alliance with NTU and LKCMedicine was welcomed, NHG and TTSH had no intention of giving up the relationship with YLLSoM i.e. TTSH was determined to continue as an affiliated teaching hospital of YLLSoM while managing the demands from LKCMedicine.

(c) The Ministry of Education had announced that there would be an international partner for the new medical school (Coughlan, 2010; Imperial, 2010; Ministry of Education [MOE], 2010). Therefore NHG's and TTSH's ability to relate to a university team that has no experience with doctors, a medical school team in its infancy and an international partner that has substantial influence over the medical school, would be challenged repeatedly.

(iv) Traditions

(a) Two major constituents in NHG, TTSH and the Institute of Mental Health (IMH) have a history of more than 170 years and 80 years respectively and rich traditions that are recognised by Singapore National Heritage Board as historic sites. They are two out of three healthcare institutions given such recognition. NHG together with TTSH and IMH want to preserve their uniqueness and allow their evolution to be truly Singaporean – a process that is potentially threatened with the insertion of an international partner into the partnership.

(b) In a typical year, NHG's and TTSH's own traditions, rituals and ceremonies –

important artefacts (Schein, 2010) that represent an accessible part of TTSH's culture - are sufficient to pack the weekly calendar. With LKCMedicine as a strategic partner, formalities and observances unique to the medical school and university would now compete for attention and meaning in the busy calendar of events, potentially diluting the symbolism of NHG's and TTSH's traditions.

Based on the above, NHG's decision in favour of a relationship of inter-dependence with LKCMedicine, and not full integration, was applauded by its constituent members and probably by MOH too. Such a decision has far-reaching implications for TTSH in its transformation into an academic health centre, which I will elaborate in the Results and Discussion chapters.

(4) My Role

(4.1) An Invitation to Receive the Baton

In 1999-2000, the National University of Singapore Faculty of Medicine (YLLSoM's predecessor) established the Scheme of Associate Deans (TTSH, 2000). As agreed by MOH and the National University of Singapore, an Associate Dean would be appointed in every hospital that provided clinical education for medical undergraduates and postgraduates (see Annex C). The hospital's Chairman of the Medical Board would nominate a suitable candidate from among the staff of senior consultant grade. The foremost term of reference for the Associate Dean was to "ensure and supervise the implementation of undergraduate medical training programme of medical students as determined by the YLLSoM, NUS" followed by assisting YLLSoM, Joint Committee on Specialist Training and Singapore Medical Council Education Committee in formulating the training curricula, supervising and implementing training programmes for house officers (i.e. new medical graduate in his/her first year of work as a doctor), basic and advanced trainees (see Annex C).

Dr C, after completing his term as Chairman, Medical Board (CMB), became TTSH's first Associate Dean in 2000 (see Results for Dr C's career in TTSH). By 2007, Dr C felt that it was time to pass the baton to a younger doctor/clinician-educator. The then-CMB Dr H invited me to consider the appointment. The importance of the work and opportunities for

contributing significantly to clinical education in TTSH and nationally was undeniable. After much reflection and discussion, and assurance from Dr H that I could count on TTSH's support, I accepted the appointment. My work as TTSH's second Associate Dean for YLLSoM described below, positioned me paradoxically to play a key leadership role in the formation of the new medical school – in many ways considered to be YLLSoM's "rival" because of competition for applicants especially the top performing candidates from reputable high schools.

(4.2) Associate Dean, 2007 – 2010

Learners, especially medical students, were the focus of the Associate Dean's work and their experience in TTSH was an important matter. Collecting feedback from students was an established practice but the data were not systematically shared with Heads of Clinical Departments (aka Clinical Heads) whose doctors provided the teaching. The regular sharing of feedback data was implemented in 2007 and is still in force currently. In addition to the large patient load that provided learning opportunities, the learners also highlighted repeatedly caring supervisors and TTSH's strong teaching culture.

Reviewing the feedback, I felt that what set TTSH apart were the clinical teachers. Hence a significant part of my work between 2007 and 2010 was related to clinical teachers.

(4.2A) Clinical Teachers

Schleicher (2007) stated, "The quality of an education system cannot exceed the quality of its teachers," a statement that Barber, Donnelly & Rizvi reiterated in their report (2012). Schleicher and Barber et al were referring to primary and high school teachers but I felt that it was true of clinical teachers in TTSH too. One of my first tasks was to meet Clinical Heads to review the list of clinical teachers, and based on feedback from the learners, identify who was teaching well and who had room for improvement. The next step was to meet and hear from the top performing teachers, what they thought they were doing well and triangulated these findings with the feedback and comments from students and trainees, and their Heads. Confidential one-to-one meetings with the clinical teachers who had room for improvement to understand their perspective were also completed. These findings were aggregated, summarised and anonymised before being presented to the Clinical Heads so that there was collective understanding of what top performing clinical

teachers did.

More teaching awards were added so that more colleagues could be recognised for their good teaching. Teacher's Day celebration was introduced and became an annual event for TTSH, students and trainees to show their appreciation. With support from YLLSoM, a tiered system with defined criteria to share tokens of recognition with clinical teachers was implemented – these tokens ranged from sums of S$1200 to S$6000 per annum.

(4.2B) Quality of Interaction

When students and teachers interact, learning occurs, and thus improving the quality of student-teacher interaction improves learning (Schleicher, 2007). Top performing clinical teachers shared certain characteristics that improved the quality of interaction with learners e.g. being respectful towards patients and colleagues (e.g. nurses), ensuring a psychologically safe environment, recognising and seizing many teachable moments during ordinary clinical work, a masterful blend of question-and-answer versus show-and-tell to draw learners out and to share knowledge etc. As stated above, these characteristics were shared with Clinical Heads, with the advice that they should in turn share with the doctors in their departments.

Clinical teachers were encouraged to attend courses to enhance their supervisory, bedside/clinical teaching, assessment, and feedback skills. Course fees were partly subsidised as an incentive. For the teachers who were doing well, it was an exercise to enlarge their sphere of influence. For those with room for improvement, the hope was that they would learn from their instructors and peers at the course.

For clinical teachers with a specific learning need e.g. communication course instructorship, bespoke courses were organised to meet these needs.

(4.2C) Monitoring Learners' Performance

"High-performing school systems…set high expectations for what each and every child should achieve, and then monitor performance against the expectations, intervening whenever they are not met" (Schleicher, 2007). In 2007, YLLSoM did not have a system that ensured every clinical posting had learning outcomes. For some with learning outcomes, they were ill matched to the seniority of the students and the duration of clinical posting. Hence another major undertaking during my first two years was to work with posting

coordinators and Clinical Heads to review and write/re-write learning outcomes matched to YLLSoM curriculum, clinical relevance, seniority of students and duration of the posting.

When this was completed TTSH had a system that assessed each student's performance against the learning outcomes, identified those who needed more support and intervened early to help the student.

(4.2D) Painful Lessons

The above though onerous proceeded smoothly because these were matters within TTSH and colleagues were supportive of improving the learning and teaching experience for learners and clinical teachers respectively. My painful but precious lessons were learnt outside of TTSH - during the Associate Deans' meetings.

Despite being aware that YLLSoM was a very different organisation, like my colleagues representing TTSH in the YLLSoM committees, I was still ill prepared for the dissimilarities that were most manifest during the regular Associate Deans' meetings at NUS. Our work was challenging because it was at the boundary of two social worlds – a theory that will be discussed in the Literature Review chapter. The Associate Deans' meetings were chaired by the Dean or in his absence, one of the Vice Deans, attended by Associate Deans (or equivalent) from all the hospitals, Assistant and Vice Deans from YLLSoM. Several incidents left me feeling uncomfortable e.g. the remedial process for a sub-optimally performing learner was not sufficiently structured, decision making was based on experience and gestalt rather than on evidence etc.

Other incidents abounded whereby the lens I used to examine issues and make decisions differed substantially from the Dean and other Associate Deans. The inability to bring about changes in YLLSoM was frustrating. Additional frustration surfaced back at TTSH when my colleagues deemed YLLSoM's requests to be unreasonable and a tiring process of repeated negotiations ensued.

The lessons I learned as Associate Dean helped my team and I to approach the NTU collaboration with much more awareness of the intricacies and complexity and the preparation needed to navigate the boundary between two social worlds – hospital and medical school.

(4.3) Assistant Chairman, Medical Board (Education), 2010 till Present

After accepting the NTU invitation in 2009, Dr LSW, CEO TTSH and NHG, and Dr H, CMB decided that a separate team was needed to lead the collaboration (see “A Team for Each School” in Results chapter). A colleague was appointed to take over from me as the Associate Dean for YLLSoM. His tasks were to allay fears and provide assurance that TTSH remained committed to provide quality learning for YLLSoM students.

I was appointed as Assistant Chairman, Medical Board (Education, ACMB Education) in 2010. Given my experience with YLLSoM and leading undergraduate matters in TTSH, I was deemed suitable to lead the team to spearhead the collaboration with NTU while at the same time, safeguard the interests of TTSH and NHG. NTU also concurrently appointed me as one of the Assistant Deans for the medical school. With the combined portfolios of ACMB Education, TTSH and Assistant Dean, NTU-medical school, I was in the unique position to lead both the TTSH-NHG and NTU-medical school teams, to represent the interests of both organisations fairly, interests that were sometimes at odds with each other. My position also allowed me to experience and reflect on the impact on TTSH and its culture as it transforms into an academic health centre – a process that is still on going at the time of writing. It is timely to pause and ask this question, “What is the impact on TTSH’s teaching culture of transforming into an academic health centre?”

(4.4) Member and Researcher

By introducing my work as Associate Dean and ACMB Education, I wish to state that I am both ethnographer-researcher and actor in TTSH’s transformation. I am a TTSH member and actor on its education work long before I conceived the idea of studying its teaching culture and transformation, and assume the role of ethnographer-researcher. Adler & Adler (1994 p.380) described a situation such as mine as complete member researcher, whereby “…researchers in the complete membership role are those who study scenes where they are already members…” - a stance that I will elaborate in the Perspective and Methodology chapter.

In the next chapter, I will review the literature on theories of organisations and culture with a focus on those applied to healthcare, hospitals, academic health centre and its mission.

Chapter II. Literature Review

In this chapter I will review the literature relevant to my study, covering these areas: (1) organisational theories applied to healthcare, (2) organisational culture in healthcare and (3) academic health centres, their mission and culture. Schein's definition of culture (2010 p.18) states, "The culture of a group can now be defined as a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore to be taught to new members as the correct way to perceive, think, and feel in relation to these problems." Cooke et al in their seminal work "Educating Physicians: a Call for Reform of Medical School and Residency" contributed this definition (2010 p.197): Institutional culture is the collective beliefs, values, language, symbols, rituals, norms, practices, assumptions, and accumulated wisdom of the group – 'who we are and how we do things here'. These two definitions complement each other.

In this study, the group and "we" refer to Tan Tock Seng Hospital, which is an organisation. Many studies have been done on organisations, spawning a lot of literature on theories of organisations and culture. For each section in this review I have included illustrative studies to link organisational theories with culture and in particular organisational culture and finally with teaching culture. This served two purposes: (1) to theorise the background issues described in Chapter I Introduction and the findings in the Results chapter and (2) to elucidate lessons to be learned and provide an appreciation of best practices.

I begin the review with organisational theories to provide the background for the subsequent discussion on culture.

(1) Organisational Theories Applied to Healthcare

Healthcare and its organisations are complex (Plsek & Greenhalgh, 2001; Begun, Zimmerman & Dooley, 2003; Braithwaite et al, 2005; Rouse, 2008), and the hospital as a key site for delivery of healthcare, is equally complex. Space constraints here will not allow a full review of the literature on various organisational theories applied to healthcare.

Rhydderch, Elwyn, Marshall & Grol (2004) discussed four theories applied to healthcare of which I will concentrate on two: social worlds theory and complex adaptive systems (aka complexity theory). I selected these two because they have the potential to depict the complexity of healthcare more representatively.

(1.1) Social Worlds Theory

Social worlds theory is founded on social constructivism with roots in sociology – such a foundation in constructivism is well aligned with my study on teaching culture. Clarke (1991) provided an exposition of the social worlds theory that Strauss first proposed in 1978, giving this definition: social worlds are "groups with shared commitment to certain activities, sharing resources of many kinds to achieve their goals, and building shared ideologies about how to go about their business" (p.129) and "The boundaries of social worlds may cross-cut or be more or less contiguous with those of formal organizations. This element fundamentally distinguishes social worlds theory from most organizational theory, since a social world may be composed of a number of organizations and a number of cross-cutting subworlds wherein members of those organizations and others participate" (p.131). The actors in a social world may or may not belong to a formal organization, or may belong to more than one social world while having membership in only one formal organization. Social worlds theory accommodates this duality or multiplicity of agencies, roles and memberships of a single individual e.g. a doctor or groups in complex systems e.g. hospital and medical school such that the recording, description and analysis of their actions lose none of their richness and yet render them approachable.

Clarke went on to explain that social worlds theory was a conflict theory. The interactions between groups were conflicts until proven otherwise (1991 p.129) and activities within and between social worlds include establishing or reinforcing their boundaries and gaining legitimacy for their worlds. The concept of boundary object was also explained: an object that existed at the intersections where social worlds met, to be "'translated' to address multiple needs or demands placed on it by the different social worlds that 'meet' around the boundary object" (p.134). In the Discussion chapter I will elaborate on how boundary objects provide theoretical underpinning to appreciate some events that shaped TTSH's teaching

culture. For this review the study by Wilson-Kovacs and Hauskeller (2012) of clinician-scientists in stem cell research provided illumination on social worlds theory.

(1.1A) Clinician-Scientists in Stem Cell Research

Wilson-Kovacs and Hauskeller (2012) used ethnographic fieldwork, observations and interviews to complete a case study of clinician-scientists in UK and Germany involved in stem cell research applied as therapy for heart disease patients. They described the clinician-scientist as “a distinct type of medical professional who devotes time to biological research and clinical practice, has knowledge of basic science and its applications and possesses the right skills to translate this knowledge into potential therapies” (Wilson-Kovacs & Hauskeller, 2012 p.507).

The clinician-scientists straddled two social worlds: the world of stem cell research in laboratories inhabited by scientists, who did not understand clinicians, and the world of clinical practice where doctors treated patients with heart diseases – doctors who did not understand scientists. Wilson-Kovacs and Hauskeller (2012) did not make specific reference to social worlds theory but their reference to the clinician-scientists’ “boundary work through strategic enlistments” (p.507) and their position at the “intersection between traditional medical care, scientific research and academic medicine” (p.508) nodded towards social worlds theory.

(1.1B) Boundary Workers

Just like the clinician-scientists, my colleagues who represented TTSH in the YLLSoM committees and I as associate dean, were boundary workers. We worked at the boundary between the social worlds of TTSH and YLLSoM, which were in conflict: conflict about what constituted fair allocation of resources for student education, definition of quality clinical education, processes to remediate under-performing learners etc. It fell upon the shoulders of boundary workers to reinforce boundaries and gain legitimacy for their worlds and claims (Clarke, 1991) and they had to do this in both worlds.

Like the clinician-scientists, boundary workers between medical school and hospital needed to have skills that were of value to both organisations in order for them to be legitimate members in both worlds. These skills included ability to negotiate complex disciplinary arenas (Wilson-Kovacs & Hauskeller, 2012), to present the challenges faced by

the hospital to YLLSoM, to present the needs of the medical school to TTSH, to perpetually manage the conflict and yet secure the proverbial “win-win” solution. Such skills are either the product or manifestation of the TTSH culture, of values and assumptions about the appropriate way to perceive, think and solve problems. While the boundary workers brought the TTSH culture to the medical school, they in turn learned some of the YLLSoM culture, brought it back to TTSH and in the process were changed to a varying extent.

The social worlds of hospital and medical school would feature again in the Results chapter in the context of LKCMedicine and another group of boundary workers would also emerge.

(1.2) Complex Adaptive Systems / Complexity Theory

Complexity theory has roots in physics, mathematics, biology and social sciences, and has expanded into the study of organisations (Begun et al, 2003; Tenbensel, 2013). Begun et al (2003 p.255) gave this explanation: “’Complex’ implies diversity – a wide variety of elements. ‘Adaptive’ suggests the capacity to alter or change – the ability to learn from experience. A ‘system’ is a set of connected or interdependent things. In a complex adaptive system, the ‘things’ are independent agents…A complex adaptive system has a densely connected web of interacting agents, each operating from its own schema or local knowledge.”

Complex adaptive systems have some defining characteristics.

(A) They are dynamic, in a state of flux, constantly changing and “system behaviors may appear to be random or chaotic” (Rouse, 2008 p.18).

(B) A complex system is often poised at the “edge of chaos”, defined as “a critical phase that occurs where it is not possible to predict outcomes with certainty. The possibility for the emergence of new, adaptive patterns is at a maximum at the edge of chaos.” (Mennin, 2010) The idea is that the system drives towards increasing diversity, does not settle into a stable equilibrium but maintains a state of perpetual disequilibrium and yet does not fall apart (Brown & Eisenhardt, 1997; Chiles, Meyer & Hench, 2004).

(C) Such systems are “massively entangled” (Begun et al, 2003 p.256) i.e. there are multiple parts and agents within the system leading to relationships that are multiple, interdependent, and non-linear because the agents are “*independent agents* whose

behavior is based on physical, psychological, or social rules rather than the demands of system dynamics" (Rouse, 2008). The interdependency and non-linearity also meant that small change in parts and variables might have small impact or large impact on the system under different circumstances, and vice-versa. Agents in their interactions with other agents change one another – these interactions e.g. feedback loops may lead to change or stability in the system depending on the relationships among agents.

(D) Complex adaptive systems are self-organising because "(a)gents are *intelligent*. As they experiment and gain experience, agents learn and change their behaviors accordingly" (Rouse, 2008 p.18). Over time new or different system behaviours emerge because agents adjust their interactions based on the other agents and adapt to each other's behaviours. This iterative process of adaptation and change when communicated among agents creates norms. Plsek and Greenhalgh (2001 p.627) noted that, "Order, innovation, and progress can emerge naturally from the interactions within a complex system; they do not need to be imposed centrally or from outside." However Rouse (2008 p.18) also cautioned that, "The nature of emergent behaviors may range from valuable innovations to unfortunate accidents."

(E) Complex adaptive systems are robust because their agents (i) have diverse backgrounds and experiences and (ii) are able to respond and adjust to feedback (Begun et al, 2003; Rouse, 2008). The multiple and interdependent relationships among agents and parts allow others to respond when one part of the system is disrupted. This enables the system to adapt effectively to a wide range of environmental challenges, and builds resilience and robustness.

(F) Complex adaptive systems typically do not have a single leader in control/in-charge though there is control e.g. via distributed leadership in healthcare (Rouse, 2008). "There is *no single point(s) of control*…Consequently, the behaviors of complex adaptive systems can usually be more easily influenced than controlled." (Rouse, 2008 p.18)

Two studies will be discussed: the study by Brown and Eisenhardt (1997) that linked complexity theory to continuously changing organisations in the computer industry and the study by Chiles et al (2004) on organisational emergence and musical theatres in Branson, Missouri, USA.

(1.2A) Continuously Changing Organisations

Collecting data via interviews, questionnaires, observations, and secondary sources Brown and Eisenhardt (1997) used a multiple case study method and cross-case analysis to examine six companies in the computer industry where continuous change was the norm. Unlike the computer industry, healthcare as an industry changes slowly. However the convergence of medical education initiatives on TTSH between 2009 and 2014 brought about rapid continuous changes that rendered the theoretical concepts in the study by Brown and Eisenhardt (1997) relevant to TTSH.

The successful companies manifested certain properties including semi-structures and sequenced steps. Semi-structures are those that "…are sufficiently rigid so that change can be organized to happen, but not so rigid that it cannot occur. Too little structure makes it difficult to coordinate change. Too much structure makes it hard to move." (Brown & Eisenhardt, 1997 p.29)

Semi-structures emerged from a combination of characteristics of complex adaptive systems: its dynamic and constantly changing nature, and self-organising behaviour as agents experiment, gain experience, learn and change. During TTSH's engagement with YLLSoM the structures that supported the doctors were not yet at the level of semi-structures and hence the distress and frustration at both the inability to bring about changes on one hand and the chaos on the other hand. My colleagues and I as agents in a complex system did not allow these painful lessons go to waste. We learned from the YLLSoM experience, adapted and tweaked the structures so that they became the semi-structures that were ripe for the collaboration with LKCMedicine, which would be discussed in Chapter V. The tweaking of the structures took the form of delineation of clear responsibilities and priorities coupled with formal meetings and extensive communication (Brown & Eisenhardt, 1997) and feedback – such learning was rooted in the values and assumptions of TTSH, in the culture of TTSH.

The second property was sequenced steps: choreography of movements that successful leaders executed to transition their organisations from the present to the future (Brown & Eisenhardt, 1997). Complex systems have many parts and agents leading to relationships that are multiple and interdependent. Managing the transition from present to

future well may bring benefits that are worth many times the effort thus exerted due to the non-linearity of relationships. Conversely, not managing the transition well will decouple the present from the future (Brown & Eisenhardt, 1997 p.25) precipitating damage that may be out of proportion to the initial decision, again due to the non-linearity of relationships. TTSH's attempt to influence YLLSoM's "upstream" education activities in Chapter I was a case in point. This ability to influence was a desirable future state but the transition was not well managed, resulting in the boundary workers feeling ill prepared and discouraged, and the hospital viewing the medical school with unfriendly eyes. Once again the lessons were learnt and for the engagement with LKCMedicine, the transition was executed with sequence steps.

(1.2B) Organisational Emergence

Chiles et al (2004) collected data via interviews, questionnaires, observations, secondary sources and archived documents, and published a longitudinal case study of Branson, Missouri. The study explicated how Branson emerged over a century from an unknown little hamlet to a modern city bustling with musical theatres and other entertainment with annual revenue of billions of dollars. I have chosen this case as an illustration of complexity theory applied to a social group that has emerged over a few decades and transformed into an entity that is distinct from the original: the similarities to TTSH warrant closer examination.

Several mechanisms of emergent self-organisation were noted: fluctuations (e.g. activities, events, resources etc.) that initiated a new order, positive feedback loops that amplified and reinforced the fluctuations and stabilising mechanisms (Chiles et al, 2004, p.500 and 514). When a social group faced and reacted to a fluctuation, the reaction could bring about a new order e.g. new way of thinking, deciding or doing things. If feedback loops supported and reinforced the group's reaction and new order, it would be considered valid and become entrenched – one important aspect of culture. On the other hand if the group's reaction or the new order led to disagreeable impact on other agents/components in the system, the affected agents/components might resist, becoming stabilising mechanisms to keep the group and system in check – again a critical facet of group culture.

In 2010 YLLSoM's publication of the graduate exit questionnaire results was a fluctuation that precipitated a new order in some affiliated teaching hospitals. In TTSH the

new order included a shift from the tutor/teacher-centric to a student-centric mode of engagement and a new proactive stance towards requesting for regular feedback from students about their learning experience and instituting timely interventions. This new manner of engaging students and leveraging on feedback was welcomed by the students, who then rated TTSH highly or even higher, effectively setting up a self-reinforcing loop that went on to ingrain the new order. The theorising of the emergence of TTSH's teaching culture based on these organisational emergence mechanisms will be elaborated in the Discussion chapter.

To conclude this section: healthcare systems and hospitals e.g. Tan Tock Seng Hospital, are complex organisations. The organisational theories appropriate for analysing such entities must accommodate their complexity.

(2) Organisational Culture in Healthcare

The choice of social worlds theory and complexity theory as prelude to this section was deliberate because they apply the metaphor of a dynamic and "living" organism to the organisation and not that of a machine as metaphor (Plsek & Greenhalgh, 2001; Begun et al, 2003; Rouse, 2008). The idea of culture – linked to beliefs, values, practices, assumptions etc. has legitimacy when applied to an organisation that is a "living" organism because a machine – mechanical and non-living – is not an entity that can generate or build culture. In this review I have therefore chosen social worlds theory and complexity theories and not included studies that alluded to the organisation as a machine.

A large amount of literature on organisational culture in healthcare especially in patient safety, patient centeredness-shared decision-making, teamwork and interprofessional collaboration, and management/improvement is available. However publications on the culture of teaching/teaching culture hardly existed. Again space constraints here will not allow a full exploration of the literature on healthcare organisational culture. Hence I will be selective in my reviews in presenting two "snapshot" studies. Before discussing the studies, it is useful to note a controversy.

With due acknowledgement that culture is a highly contested term (Braithwaite et al, 2005; Bellot, 2011; Jacobs et al, 2013), the controversy centres on the relationship between

culture and organisation vis-à-vis “culture as something that an organisation is” versus “culture as something that an organisation has” (Davies et al, 2000 p.112; Bellot, 2011). The latter approach i.e. an organisation possesses culture but culture is not the whole of organisation means that culture is open to manipulation (Davies et al, 2000; Schein, 2010; Bellot, 2011). Two studies of organisational culture in healthcare settings, premised on the idea that organisations possess culture, will be discussed here.

(2.1A) Clinical Directorates in Two Australian Hospitals

Braithwaite et al (2005) used mixed methods comprising ethnographic fieldwork, observation, interviews, analysis of archival documents and questionnaire surveys to compare two teaching hospitals that had adopted Clinical Directorates (i.e. groupings of related services, wards, units and departments) to deliver care. Both hospitals had similar baseline in terms of size, population base, financial resources and human resources e.g. trained staff. In the six categories of leadership, structure, communication, change, finance and human resource management, the two hospitals - the Royal and the Metropolitan - were found to have very different cultures.

Compared to the Metropolitan, the Royal had strong leaders, staff who were involved in workplace processes, and good morale. Staff at the Royal was more supportive of Clinical Directorates, had a more productive focus, showed more cohesion and unity on the way forward. Braithwaite et al (2005 p.1160) concluded that “large health service organisations with matched structures, caseloads, profiles and environments may have different results and varying successes depending upon their cultural characteristics.” This study provided insight into the comparison of TTSH’s teaching culture with that in two other public hospitals: hospitals with similar baselines and resources can evolve to have different cultures as manifested in categories like leadership, structure, change management, communication and management of resources. Such cultural differences would impact performance as could be seen in the YLLSoM graduate exit questionnaire results. What Braithwaite et al did not address was how the cultural differences evolved, which in fairness was not the objective of their study.

(2.1B) Organisational Culture and Performance in Acute Hospitals in England

For the second study - a longitudinal study of board level managers in acute

hospitals, Jacobs et al (2013) conducted cross sectional surveys over three time periods: 2001/02, 2006/07 and 2007/08. They used a culture assessment tool, the Competing Values Framework (Quinn & Rohrbaugh, 1981) – see Figure 2.1. There are two dimensions in this framework generating a two-by-two matrix. In the version by Quinn and Rohrbaugh (1981 p.130), one dimension (x-axis) represents organisational focus that ranges from person-orientation/emphasis to task-orientation/emphasis. Jacobs et al (2013) had modified thus: "internal focus: smoothing, integration" and "external focus: competition" respectively. The second dimension (y-axis) represents organisational preferences and ranges from stability and control (Jacobs et al named this as "mechanistic type processes") and flexibility and change (named as relationship-based processes by Jacobs et al, 2013). The framework indicates four culture types: Clan ("do things together"), Developmental ("do things first"), Hierarchical ("do things right") and Rational ("do things fast") (Jacobs et al, 2013 p.116-7).

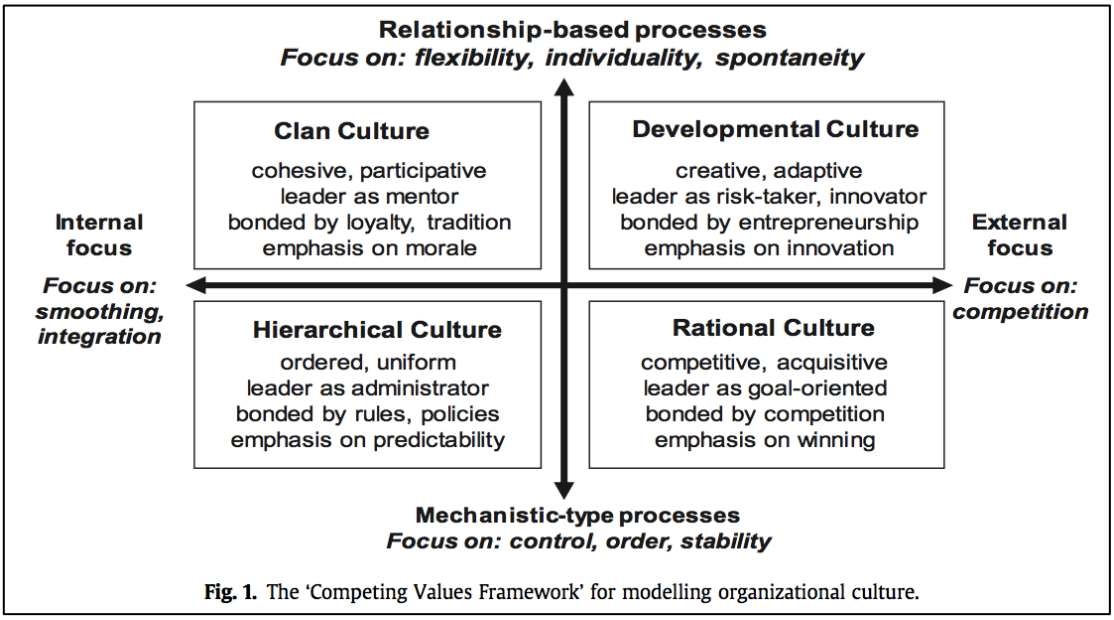

Fig. 1. The 'Competing Values Framework' for modelling organizational culture.

Figure 2.1 Competing Values Framework, reproduced from Jacobs et al (2013 p.117).

Jacobs et al (2013) had good response rates and collected a large amount of data. They correlated the hospital culture scores with hospital performance data from several national longitudinal databases e.g. Department of Health, Hospital Episodes Statistics etc., selecting some representative indices to report.

They found that most hospitals had a blend of culture types and were becoming increasingly so over time. In 2001/02 Clan culture was the dominant type but by 2007/08, Rational culture had overtaken Clan culture. Larger hospitals and teaching hospitals

reported more of Rational culture. The Rational culture was associated with higher clinical negligence expenditure (i.e. claimant legal costs, damages paid to claimants and defence legal costs) by the hospitals and longer median waiting time for patients. Higher management and nurse salaries but lower consultant salaries were associated with the Rational culture. The authors linked the rise in Rational culture to the larger NHS reforms with the emphasis on pro-market polices, explicit economic incentives, patient choice, activity-based funding for acute care etc.

The Clan culture had declined and by 2007/08, it was the small hospitals and specialist hospitals cluster that reported the Clan culture. The Clan culture was associated with higher clinical negligence expenditure and longer median waiting time for patients but higher number of day cases (a measure of efficiency) and lower number of imaging tests per bed. It was associated with lower management and nurse salaries but higher consultant salaries – the reverse of Rational culture. Jacobs et al (2013) concluded that organisational culture impacted on performance and "those aspects of performance valued within a given culture are enhanced in hospitals that exhibit strong congruence with that culture." The Competing Values Framework would also be featured in a study in the next section of this review.

The Competing Values Framework was particularly illuminating on the experience of my colleagues appointed to YLLSoM committees and my experience as associate dean. Doctors within TTSH believed that the "kampong" (Malay word for village) spirit was a defining feature of membership (see Dr O's comments in Results) – a feature that approximated the Clan culture. YLLSoM – being a medical school with a strong emphasis on research, probably had a different culture. The "kampong" spirit/clan culture had engendered in us different values and assumptions and the distress we experienced was in part related to our struggles to legitimise these competing values beyond the confines of TTSH in the boardroom of YLLSoM.

The Competing Values Framework was also instructive in NHG's decision to develop an inter-dependent relationship with LKCMedicine instead of full integration. NHG sensed intuitively that some aspects of its culture, values and assumptions were important to be inserted into LKCMedicine's cultural DNA and hence warranted the resources needed to

execute the insertion. NTU's and Imperial's culture were likely to be different and some aspects would be disagreeable to NHG-TTSH e.g. the Rational culture that was overly competitive with too much emphasis on winning. NHG would also need to expend resources in resisting the insertion of these less-welcomed aspects into LKCMedicine. Hence an inter-dependent relationship between NHG and LKCMedicine allowed sharing of beliefs, values and assumptions that were common and avoided contentious cultural aspects that could damage the collaboration.

The question that begged to be asked was why did I not include a Competing Values Framework survey in my study? The reasons were two-fold: (1) while results from such a typology survey would have provided rich background information, it was not central to my study and (2) the resources needed to conduct such a survey were not available.

To conclude this section: without denying that "culture" is a contested term, the concept of organisational culture has traction in healthcare systems of various countries. In complex organisations like hospitals and healthcare systems, these studies support the association between culture and performance. Hospitals and healthcare systems show adaptive behaviour in response to external influence (e.g. healthcare reforms) and/or internal forces, with associated changes in culture over time.

(3) Academic Health Centres

Compared to the above, studies of organisational culture in academic health centres are fewer, of which I have selected some to review. After an extensive search, I found commentaries on the teaching-education mission but not any study that examined specifically the teaching culture in a hospital, healthcare institution or an academic health centre (AHC). Studies on AHC mission would be instructional for NHG-TTSH because for the last few decades it was a story of repeated struggles: struggle for legitimacy, struggle for resources, and struggle for relevance (Blumenthal et al, 1997; Whitcomb, 2005; Cooke et al, 2010; Pardes & Pincus 2010; Fuchs, 2013; French et al, 2014). While the societal context differs, the principles underlying successful strategies may be transferrable as discussed below.

To recap, in addition to the definition by Wartman (2007), the Committee on the

Roles of Academic Health Centers in the 21st Century (NAS, 2003) offered this definition of AHC:

"…a constellation of functions and organizations committed to improving the health of patients and populations through the integration of their roles in research, education, and patient care to produce the knowledge and evidence base that become the foundation for both treating illness and improving health." It is now widely accepted that an AHC has a tripartite mission of education, patient care and research (Blumenthal et al, 1997; National Academy of Sciences [NAS], 2003; Whitcomb, 2005; Wartman, 2007; AAHC, 2009; Cooke et al, 2010; Pardes and Pincus 2010; French et al, 2014). In developed countries, AHCs are major employers too (AAHC, 2009).

(3.1) Social Missions

Against a backdrop of market practices e.g. price competition that swept through USA in the 1990s, AHCs experienced great financial distress. In 1997 Blumenthal et al from USA (1997 p.1550) argued the case for continuous support for AHCs on the premise of socially valuable goods: "competitive markets alone are unable to produce certain types of socially valuable goods and services effectively or efficiently. Applying this rationale to the work of academic health centers, we identify activities — their "social missions" — that are likely to be undersupplied in competitive markets and that constitute the primary reason for the public support of academic health centers." The social missions are research, education of future healthcare professionals, care of underserved and/or vulnerable groups, and essential specialized care that are unprofitable e.g. HIV care etc.

Several other authors e.g. Pardes and Pincus (2010) and Cooke et al (2010) presented similar arguments in their call of better support.

(3.2) The Teaching Mission

Of the three social missions, the Committee on the Roles of Academic Health Centers in the 21st Century (USA) made seven recommendations in their report, out of which two were related to the teaching mission (NAS, 2003). This committee recommended that AHCs should lead in evolving the content and methods of health professions education to meet new challenges, for example in areas such as interprofessional education, social and behavioral sciences etc. The second recommendation was to the USA government to

support innovation in clinical education through changes in the financing of clinical education, with priority given to interprofessional education and use of information technology as an enabler. Whitcomb's commentary (2005) echoed these recommendation with more specifics: design of clinical learning in ambulatory and other non-hospital settings, re-design of inpatient clinical education experiences, administration and financing of such clinical education and evaluation of its quality, and incorporation of new techniques (e.g. simulation) and technology (e.g. virtual patients).

The observations and recommendations by NAS in 2003 and Whitcomb in 2005 were very similar to the call for reform in medical education by Cooke et al in 2010. This elaboration on the teaching mission served as background to understand the interventions described in the Results chapter.

(3.3) Unequal Partners

In this section I will review three studies: one that explored the organisational culture of an English AHC, a second study that examined the relationship between a medical school and a hospital in Uganda and the third study that discussed the reasons for a failed merger of a medical school and hospital in Pennsylvania, USA. The partnership between hospital/healthcare institution and medical school is inevitably unequal because cultural characteristics, performance indicators, influence and political clout, and resources differ. The studies below pointed towards the impact of organisational culture and leadership on relationship between hospital/healthcare system and medical school.

(3.3A) The University of Oxford Medical Sciences Division and Oxford Radcliffe Hospitals NHS Trust

Ovseiko and Buchan (2012) studied the AHC comprising the University of Oxford Medical Sciences Division and Oxford Radcliffe Hospitals NHS Trust in 2010. These two institutions wanted better academic-clinical integration, to take advantage of the incentives from the National Institute for Health Research to ramp up translational research, and to reduce their overhead costs. They conducted an online survey of doctors and scientists using the Competing Values Framework (see Figure 2.1 above), with a 39% response rate. They found that the Hierarchical culture was dominant in the hospital, the Team (aka Clan) and Rational cultures were moderate and the Entrepreneurial (aka Developmental) culture

was underdeveloped. The medical school did not have a dominant culture. The respondents aspired towards Team-Clan and Entrepreneurial-Developmental cultures and to a lesser degree, the Rational culture over the following five years.

The study by Ovseiko and Buchan (2012) when examined in juxtaposition with the study by Jacobs et al (2013) provided interesting observations. Both were studies in the English healthcare system using the Competing Values Framework. Jacobs et al (2013) surveyed managers in 2007/08 and found that the Rational culture had risen to prominence and the Clan culture had declined. Ovseiko and Buchan (2012) surveyed doctors and scientists in 2010 and they reported that the Hierarchical culture was dominant in the hospital and respondents desired a future state of Team-Clan and Entrepreneurial-Developmental cultures, which were not high on the managers' agenda in the study by Jacobs et al. The Team-Clan culture and its applicability to TTSH will be examined in later chapters.

(3.3B) The Makerere University Medical School and Mulago Hospital, Uganda

The Makerere University medical school and Mulago Hospital - a teaching hospital for the medical school - are large, established and respected institutions in Uganda. Mubuuke, Businge & Mukule (2014) completed a cross-sectional study to examine the relationship between medical school and hospital in a resource-challenged setting. They administered interviewer-facilitated questionnaires and qualitative questions with key informants who were administrators and senior members of staff. The authors found that while independent both institutions needed each other and their resultant relationship that was strained. Several factors were identified. Though both institutions shared common values, they did not share common goals or strategic directions. The administrative structures were different and they could not share resources e.g. financial or research efforts. The relationship had no legal undergirding to define roles and responsibilities, leading to unhealthy competition and allegations of exploitation by both institutions. The authors reported that addressing these factors would improve the relationship.

Ostensibly Uganda is very different from Singapore and comparisons will have limitations. Nonetheless, some key lessons are applicable, including a legal undergirding for the relationship between hospital and medical school to delineate roles and responsibilities,

sharing of some common goals and structures to facilitate the sharing of resources. Some of these aspects will be presented in the Results chapter.

In the final study below, some of these factors were also identified in the relationship between two institutions in Pennsylvania, USA, factors that led to the failure of the merger ultimately.

(3.3C) The Hershey Medical Center and Geisinger Health System, USA

In the world of biomedical publications, reports of failed intervention are unusual. Hence the report by Mallon (2003) of the failed merger of Pennsylvania State University's Hershey Medical Center (which had the medical school) and Geisinger Health System was noteworthy. Mallon (2003) completed a qualitative study using interviews with key informants and review of archival documents. These events took place between 1997 and 1999 against the backdrop of AHCs and hospitals facing financial challenges (Blumenthal et al, 1997; NAS, 2003). In order "to strengthen their clinical enterprises, improve market position, and save money" the institutions decided to merge (Mallon, 2003 p.1094).

The new organisation ran into financial crisis and after 28 months, the merger unraveled. Three factors were identified: (i) dysfunctional leadership, (ii) distrust among board members, and (iii) different organizational cultures (Mallon, 2003). The leaders of the medical school and the health system both had strong personalities, were allowed to keep their leadership positions but failed to delineate the authority and responsibilities for the clinical and academic components of the merged entity. Old loyalties persisted and the staff of both institutions did not trust the leader from the other side. Because Geisinger financed the merger, Geisinger had control of the board. Like the staff, board members' old loyalties persisted. In addition, there was no common vision at the board level and it failed to provide the leadership and direction for the new entity, including how to select a new leader. Mallon also noted that, "little attention was spent on an in-depth examination of the two organization's cultures." (Mallon, 2003 p.1100) The pre-merger negotiations were conducted in secrecy among a small group without consulting key members e.g. doctor-leaders from both organisations. One interviewee commented, "No one thought about the human side, the social side, of the merger. They weren't trained to think about that. They only thought of the economics, about the money involved. But they didn't consider the power of sense of

identity and culture." (Mallon, 2003 p.1100)

Mallon's study of the failed merger was an important contribution to the healthcare organisational culture literature. It made NHG and LKCMedicine's parent universities - NTU and Imperial College London evaluate critically and validate our understanding of culture and leadership that influenced the relationship between hospital and school. Decisions and actions taken by TTSH reported in the Results chapter made sense in the light of this study. After all organisational culture is not just about how we do things here (Cooke et al, 2010) but also about how we will not/do not do certain things.

(4) Conclusion

Several aspects are useful to restate as summary of this chapter: healthcare systems and hospitals e.g. Tan Tock Seng Hospital, are complex organisations. The organisational theories appropriate for analysing such entities must accommodate their complexity, of which social worlds theory and complexity theory provide a good fit. These theories apply the metaphor of a dynamic and "living" organism to the organisation that legitimises the idea of culture – linked to beliefs, values, practices, assumptions etc. Without denying that "culture" is a contested term, studies show that the concept of organisational culture has traction in healthcare systems. Hospitals and healthcare systems show adaptive behaviour in response to external influence and internal forces, and such adaptive behaviour over time changes the organisational culture. In hospitals that exhibit certain cultural characteristics aspects of performance that are congruent with that culture are enhanced.

The complexity that AHC faces is partly attributable to the need to balance the tripartite mission of teaching, research, and unprofitable but essential patient care and partly linked to the sensitive relationship between hospital and medical school. It is an unequal partnership – a phenomenon that is international. Leadership at individual and organisation-level, and organisational culture play major roles in determining if the relationship between school and hospital will be healthy and productive, or strained and destructive. It is also surprising that little has been published about teaching culture in hospital/healthcare system and AHC.

In the next chapter, I will propose a working definition of teaching culture and discuss the Perspective and Methodology adopted for my study.

Chapter III. Perspective and Methodology

This chapter discusses the methods by which data are collected and analysed to answer the research questions. There are four sections: I begin with the constructivism perspective that I am adopting and offer a definition of "teaching culture". This will be followed by a discussion on ethnographic design, my status as complete member researcher and its impact on the conduct of the research, analysis and interpretation of the data. The next section is data collection methods – fieldwork, observations, non-participant observation, interviews and interrogation of archival collections, which is followed by data management, coding and analysis, presentation of the data, and triangulation. Before I conclude I will discuss quality assurance, which includes systematic approach, transparency, good ethical practice, reflexivity and understanding role conflict, and representation.

(1) A Constructivism Perspective

Tan Tock Seng Hospital appreciates the "teaching culture" accolade given by our students and young doctors - a culture that has evolved over many years. Schein (2010, p.17) noted that, "Any social unit that has some kind of shared history will have evolved a culture. (And)…the most fundamental characteristic of culture is that it is a product of social learning."

Therefore to examine TTSH's teaching culture and our transition to an academic health centre, I have adopted a social constructivism perspective, which posits that knowledge and meaning are generated when individuals and groups examine and re-interpret their experiences and ideas in the light of a new situation. This implies that my research must rely on and represent the views of my TTSH colleagues on the teaching culture and the transition to an AHC (Creswell, 2009).

Schein's definition of culture (2010 p.18) articulates well with a constructivism perspective: "The culture of a group can now be defined as a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore to be taught

to new members as the correct way to perceive, think, and feel in relation to these problems." Schein (2010) went on to propose the three-level model in the examination of culture vis-à-vis (i) artefacts (observable and tangible structures and events), (ii) beliefs and values and (iii) assumptions (taken-for-granted tacit thoughts and understanding).

Applied to TTSH, the above informs the definition of "teaching culture":
The teaching culture is a pattern of shared assumptions that TTSH learned as a group as it managed the external adaptation and internal integration of teaching medical students and young doctors, and over time these assumptions and learning have served TTSH well enough to be considered valid and worthwhile to be taught to new doctors joining TTSH as the appropriate way to understand, decide and act in relation to teaching.

(2) Ethnographic Design

A constructivism perspective requires an appropriate inquiry strategy, which would be one that is mainly qualitative in nature. Several strategies are applicable: ethnography, grounded theory, case studies, phenomenological research, and narrative reseach (Creswell, 2009). Ethnography has its roots in anthropology and is a qualitative method to describe, analyse, and interpret the behaviour, beliefs, values, assumptions and language that a culture-sharing group has developed over time (Creswell, 2008). Given the above description, it was therefore logical to choose an ethnographic design for my study.

An ethnographic design requires immersion in the study site to collect data (Creswell, 2008; Merriam, 2009). As explained in the Introduction I have been a member of TTSH for more than two decades, immersed in my study site long before the idea to study its teaching culture took shape. Hence the term that aptly descibed my unique position as researcher within my own organisation was "complete member researcher" i.e. a researcher that studies situations or phenomena where he/she is already a member (Adler & Adler, 1994).

(2.1) Complete Member Researcher Status

As a complete member researcher (CMR) I am already participating in the social world that I am studying, immersed and spending time in the field – immersion and fieldwork being of critical importance in an ethnographic study. As a member of the same organisation,

I am likely to approximate the emotional stance of my colleagues – the informants for my study (Adler & Adler, 1987). This proximity allows me to identify and understand much that is tacit in my informants and study site, and then to describe and explain to the outside world. Clarifying my position as that of a CMR helped to articulate the ethical considerations and impact on reflexivity better, issues that I will visit later.

(2.2) Analytic Reflexivity

Reflexivity means acknowledging openly throughout the study the tension between my role as ethnographer-researcher and my responsibilities as a member of TTSH and as one of the educators, and therefore the subjectivities that I will inevitably bring. Reflexivity is also an acknowledgement that researchers influence the research process (Andrews, 2010) and the study site and culture (Kahn, 2011). As Atkinson (2006) puts it, "…the ethnographer is thoroughly implicated in the phenomena that he or she documents, that there can be no disengaged observation of a social scene that exists in a "state of nature" independent of the observer's presence, that interview accounts are co-constructed with informants, that ethnographic texts have their own conventions of representation." The awareness that there is reciprocity between my informants, the culture I am studying and I as an ethnographer-researcher, must inform the decisions and actions that I will take during the study and the writing so that I will be credible as a researcher and remain as a trusted colleague and member of my organisation.

(2.3) Narrative Visibility of the Researcher's Self

In traditional ethnography, the ethnographer was often not visible in the narrative/report but clearly present in the study. In this report, I will heed Anderson's urging to be visible (2006 p.384): to communicate the views and values of my informants alongside those of mine, to discuss the changes in our beliefs and relationships over the course of the study, to analyse them critically, so that readers can discern that my dual status as member and researcher is fraught with tension in the dynamic social world of TTSH and that of research. This translated into how I approached my informants and obtained their consent for the study, which I would elaborate later, and how I represented their views – seeking a stance that was balanced without degenerating into self-indulgence.

(2.4) Commitment to Theoretical Analysis

What differentiates ethnography as a CMR from an interesting story of my organisation is the commitment to subject the empirical data to analysis and interrogation in order to illuminate a broader set of sociological principles or phenomena (Duncan, 2004). A commitment to theoretical analysis meant that in addition to recounting the development of TTSH's teaching culture and how it was impacted on by AHC transformation, a higher order understanding of the material through broader generalisation must be attempted (Anderson, 2006). Madison (2012 p. 36) phrased it elegantly thus, "…theory…can gift us with a language and vocabulary out of which we not only discover the layers under the surface, but we rediscover the surface itself and realise in that moment that we did not know what we did not know." It is this commitment to data analysis, examination and linkage to on going established or emerging discourses that earns ethnography by CMR its scholarly place in social science research.

(3) Data Collection

Ethnography has established practices for data collection (LeCompte & Goetz, 1982):

A. Interactive data collection: (i) participant-observation, (ii) key informant interviews, (iii) career histories, and (iv) surveys
B. Noninteractive data collection: (i) non-participant observation, (ii) archival and demographic collections, and (iii) physical trace collections.

The social setting of ethnographic study site has been evolving over the past four decades to include a diverse range of settings e.g. organizations, institutions, meetings etc. in addition to the traditional setting of communities of people living together within defined geo-political boundary (Whitehead, 2005).

After some consideration for time and resource availability, I adopted the following:

(i) Fieldwork, participant-observation as a CMR and non-participant observation, and recording these observations,
(ii) Semi-structured ethnographic interviewing with key informants that includes some elements of career histories for selected informants,
(iii) Informal interviews and

(iv) Collation and review of archival collections for secondary data analysis.

(**3.1) Fieldwork**

Fieldwork means spending time at the study site to interact with the members, to observe and learn how they talk and behave, to participate in their activities and to encourage them to say in their own words, their understanding of themselves, their lives and their social world (Kahn, 2011). Fieldwork, observation and the resultant notes are key components of primary data collection in the ethnographic method.

One of the challenges as a CMR ethnographer was the need for me to keep sufficient distance in order to observe clearly and yet be close enough to participate and be a member of the community I was studying (Kahn, 2011). There were moments when this was a struggle in part because of the complicated arrangement of my work in TTSH:

- I worked as a senior consultant in the Emergency Department for 20% of my time, and
- For the remaining 80% of my time as Assistant Chairman Medical Board (Education, ACMB Education), I worked as a leader for medical students' and young doctors' education, and certain aspects of training and continuing education for senior doctors.

It was my role as a leader for education matters that enabled me to be a complete member researcher in this project. This work included participating in meetings, activities and events at the hospital level, and talking and interacting with colleagues i.e. the participatory part of the fieldwork. At the same time, such participation also gave me the opportunities to watch and learn about the processes, the practices and the people i.e. the observing part of the fieldwork. However I am mindful that it is not possible for me to take in everything and choices will be made about which activities and relationships to engage, and thereby to develop certain viewpoints and insights rather than others (Emerson, Fretz & Shaw, 2011). In the next section, I will describe the basis for selection of activities for engagement and observation.

(**3.2) Observations**

The decision about what to observe such that I could be distanced and participatory simultaneously was guided by Schein's (2010) explanation that culture can be examined at three levels:

iv) Artefacts which are observable and tangible

v) Espoused beliefs and values which are the expressed and articulated goals and aspirations, and

vi) Basic underlying assumptions which are understanding and thought patterns that are so taken-for-granted that there is little variation in the organisation and tend to resist confrontation and debate.

Based on the above, I chose certain meetings and events to observe because they were observable and tangible and might permit the elucidation of beliefs and values. The observation period was from August 2013 to July 2014. Table 3.1 lists the observations.

Serial no.	**Nature of observation**	**Number of observations**	**Dates of observation**	**Duration of observation**
1.	Medical Board meetings	10	16 Aug 13 13 Sep 13 11 Oct 13 8 Nov 13 10 Jan 14 14 Feb 14 14 Mar 14 9 May 14 13 Jun 14 18 Jul 14	1 h 20 min 3 h 30 min 4 h 3 h 3 h 45 min 4 h 50 min 3 h 30 min 3 h 3 h 20 min 3 h 5 min
2.	Clinical Heads meetings	11	16 Aug 13 20 Sep 13 18 Oct 13 15 Nov 13 17 Jan 14 21 Feb 14 28 Mar 14 25 Apr 14 23 May 14 20 Jun 14 18 Jul 14	3 h 10 min 4 h 30 min 4 h 30 min 3 h 20 min 5 h 4 h 40 min 4 h 10 min 4 h 30 min 5 h 15 min 4 h 20 min 4 h
3.	Chairman Medical Board's (CMB's) Special Quarterly meetings	4	5 Sep 13 28 Nov 13 11 Feb 14 15 May 14	1 h 30 min 2 h 2 h 1 h 30 min
4.	Chief Executive Officer's Townhall meetings	3	7 Nov 13 20 Mar 14	1 h 1 h

			4 Jul 14	1 h
5.	Award ceremonies: • Teaching and education • Research	 2 1	 6 Sep 13 30 Sep 13 27 Sep 13	 1 h 40 min 1 h 30 min
6.	Other event • Yong Loo Lin School of Medicine Vice Dean's Visit	1	12 Aug 13	1 h
	Total hours of observation			94 h 55 min

Table 3.1. Observations completed for the study of TTSH's teaching culture

(3.2A) Medical Board Meetings

The Medical Board is a top-leadership decision-making group of nominated senior doctors, nurses, allied health professionals and administrators. I chose Medical Board meetings for observation because many key decisions pertaining to teaching, education, research and clinical practice were announced, deliberated and decided by the Board. The discussion and deliberation often led to articulation and defence of values, goals and aspirations but at times also resulted in exposition of taken-for-granted thought patterns and examination of underlying assumptions, especially when the basis for these thought patterns and assumptions might no longer be valid.

The Medical Board assists the hospital Chief Executive Officer (CEO) to achieve its vision and mission, provide leadership and set policies to manage the hospital and govern the delivery of care to patients. The Chairman of the Medical Board (CMB), a senior doctor appointed by Ministry of Health, Singapore chairs these meetings. The CEO of a public hospital in Singapore cannot chair the Medical Board. The Medical Board of TTSH was constituted in 1992 and remained the highest decision-making group for doctors.

The Medical Board meetings were held monthly except for December because the hospital would have a lower level of activities with many members on leave during the year-end school vacation. Ten Medical Board meetings were held between August 2013 and July 2014 with April 2014 being a "skipped" month without a meeting. Besides the Chair, there were 28 members. Each member served a three-year term with renewal for a second term being the norm. A quorum must be met for the meeting to proceed. As ACMB Education, I was a member of the Medical Board, had legitimate access and therefore could attend,

participate and also observe these meetings. During the period of observation, key members of the Medical Board had served more than one year of their term i.e. the Board was in a stable phase. The shortest meeting lasted 1 hour 20 minutes while the longest lasted 4 hours and 50 minutes.

All Medical Board meetings were held on Friday afternoons. The agenda and papers would be emailed to members on Monday. Each meeting was preceded by a self-service buffet. Serving lunch before the meetings helped to ensure that the meetings started punctually and also allowed members to review matters arising before the start of the meetings. For non-members with papers or proposals to present to the Board, lunch had a calming effect and became an icebreaker.

The venue for these meetings was one of the meeting rooms in the annex next to the main building of the hospital. The seating arrangement was a boardroom style layout with CMB occupying the seat indicated by the diamond (Figure 3.1). A member of the secretariat would sit next to CMB to record minutes, to keep time and to remind CMB of any other matters. Those with presentations would usually sit or stand opposite CMB and project their slides on the screen. After their presentation, non-members would leave the meeting. Without invitation from CMB, non-members were not expected to stay for the rest of the meeting after their presentation. Members of the Board were free to sit around the table or away from the table.

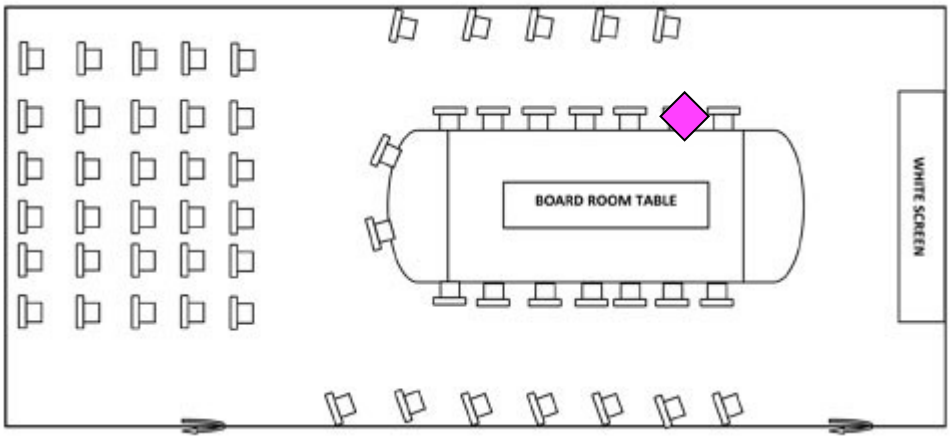

Figure 3.1. Boardroom style layout (Figure 3.1 is available from http://impumelelo.org.za/old-content/boardroom)

(3.2B) Clinical Heads Meetings

Clinical Heads (CH) represent middle management in TTSH and these meetings serve two main purposes: (i) communication between hospital leaders, Medical Board and ground staff, and (ii) discussion and decision-making for key day-to-day issues. I chose CH meetings for observation because the views and concerns of middle management and from the ground would be shared, debated and decisions, made. Decisions during CH meetings were made in the context of Medical Board decisions i.e. CMB would not allow CH to overturn a decision made by the Medical Board. If disagreement arose, the concerned members would be invited to present their case at a future Medical Board meeting and a final decision would be made during that meeting. Discussions during CH meetings were rich for implementation and practical issues that ensue from policies and decisions made by the Medical Board. The beliefs, values, goals and aspirations of middle management and ground staff were well represented during CH meetings.

Chairman of the Medical Board, chaired the CH meetings. CH meetings started in 1992 when only the doctor-clinical heads attended the meetings. During the period of observation from August 2013 to July 2014, there were 30 doctor-heads of department or service i.e. they had a team of doctors reporting to them. From 1999 onwards, nursing, allied health and administrative heads and managers started to attend CH meetings. During the observation period, there were 35 heads or managers from nursing, allied health and administration. The number of attendees at CH meetings was more than twice the number of attendees at Medical Board meetings.

The CH meetings were held monthly except for December. Eleven meetings were held between August 2013 and July 2014. The term of service at CH was the term of appointment or office for the headship or managerial position. A quorum must be met for the meeting to proceed. As ACMB Education, I was a member of the CH group and had legitimate access. The shortest meeting lasted 3 hours and 10 minutes and the longest, 5 hours and 15 minutes.

Clinical Heads meetings were also held on Friday afternoons, usually one or two Fridays after Medical Board meetings. Each meeting was also preceded by lunch. The venue for these meetings was the meeting rooms in the annex. The seating arrangement was a herringbone classroom layout with CMB occupying the seat indicated by the diamond

(Figure 3.2). A member of the secretariat would sit next to CMB. Those with presentations would usually sit at the tables nearest to CMB. During presentation, they would move forward to the front of the room indicated by the square and address the Heads. After their presentation, non-members would leave the meeting even though they were welcome to stay for the rest of the meeting. Members were free to sit anywhere in the room.

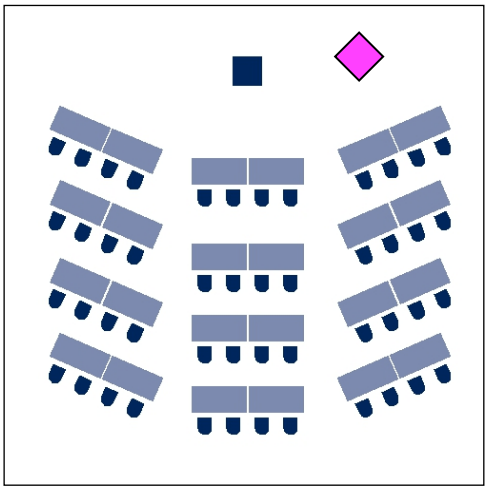

Figure 3.2. Herringbone classroom layout (Figure 3.2 is available from http://www.thousandhills.com/meetings-and-events/branson-conference-facilities/branson-meeting-room)

Similar to Medical Board meetings, Clinical Heads meetings were audiotaped and transcribed into text for vetting before approval and distribution. Vetting, approval and distribution of meeting minutes were done via email. Once approved, Heads were expected to circulate these minutes to their staff.

(3.2C) CMB's Special Quarterly Meetings

Every quarter, CMB held meetings with the doctor-heads of departments. Hence CMB's Special Quarterly meetings were a subset of the CH meetings. I chose Special Quarterly meetings for observation because matters that concerned doctors only and were sensitive or inappropriate for a larger audience would be discussed and debated during these meetings. Values and aspirations that were close to the doctors' hearts were much more thoroughly discussed during these meetings compared to CH meetings. It was during the Special Quarterly meetings that the Clan culture (Ovseiko & Buchan, 2012; Jacobs et al, 2013) was most tangible. Heads interacted with CMB as a near-peer and less as a leader. Serious matters while thoroughly debated were punctuated with good-natured ribbing and

laughter including politically incorrect jokes that would be taboo during other meetings. The sense of trust and being a family withstood the tension brought on by sensitive and thorny issues during these meetings.

Special Quarterly meetings were held on mid-week late afternoons. The agenda and papers to be discussed would be emailed to members one or two days before the meeting. Each meeting was also preceded by light refreshment. The venue and seating arrangement were similar to Medical Board meetings i.e. boardroom style layout (Figure 3.1).

Special Quarterly meetings were also audiotaped. However, unlike Medical Board and CH meetings, the audiotapes were transcribed into succinct point-form notes of meeting before circulation to Heads via email. There were four Special Quarterly meetings during the period of observation, lasting 1 hour 30 minutes to 2 hours.

(3.2D) CEO's Townhall Meetings

Chief Executive Officer's (CEO's) townhall meetings in TTSH started in 2003 and were held three times annually. I chose to observe CEO's townhall meetings because unlike the preceding meetings townhall meetings were open to all staff of TTSH, especially ground staff. CEO used these townhall meetings to report and highlight significant events that had happened since the previous townhall meeting, and to signpost upcoming events in the immediate and near future. Occasionally, CEO would use these meetings to clarify or reinforce a newly introduced strategic initiative that seemed to have met with resistance.

The term "townhall meeting", an American term is derived from the informal public meetings held in municipal halls in New England towns where members of the community may discuss issues, voice concerns and asks questions of officials (Roberts, Hammond & Sulfaro, 2012). In TTSH, each series of CEO's townhall meetings typically comprised five almost identical rounds, each round of one hour's duration. The five rounds were completed over two days to enable as many of the 7000+ staff as possible to attend. The venue was the theatrette in the main building of the hospital with a layout similar to Figure 3.3. It had a seating capacity of 220. Two adjoining seminar rooms and foyer would be commandeered to enable teleconferencing of the meetings, creating an estimated total seating capacity of 450 for each round of meeting.

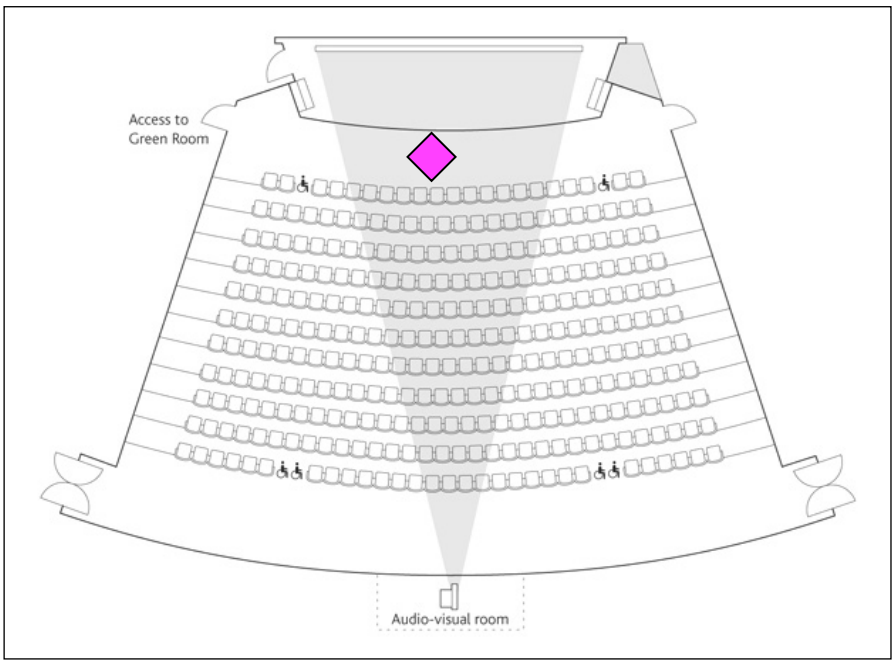

Figure 3.3. Lecture theatre layout (Figure 3.3 is available from http://www.britishmuseum.org/about_us/services/conferences_and_venue_hire/bp_lecture_theatre/technical_specification.aspx)

During the period of observation, there were three series of CEO's Townhall Meetings. During all of these meetings, CEO stood in front of the first row (indicated by the diamond in Figure 3.3) to address his audience and not on the stage behind the lectern. All townhall meetings were audio and videotaped and within one week, made available on the hospital e-learning platform for viewing. Access to the e-learning platform was via intranet i.e. not available via internet.

(3.2E) Award Ceremonies

The rich traditions alluded to in the Introduction chapter meant that many ceremonies were held regularly in TTSH. I chose to observe award ceremonies related to teaching and education, and research. I chose these ceremonies because they were rich in symbolism as events that were more significant for what they conveyed than the actual entity itself. In 2013, there were 3 teaching and education award ceremonies of various degrees of grandness. I observed two of these ceremonies that took place in September because Singapore had designated the first Friday in September as Teachers' Day.

(i) National Healthcare Group (NHG) Educator Award Ceremony

The grandest was the Educator Award Ceremony held on Teachers' Day 6

September 2013 in the atrium on level 1 of the TTSH main building (Figure 3.4). The atrium had a bright and airy feel from its glass ceiling that was four storeys high, allowing sunlight to provide natural lighting. It had a seating capacity of 80 and standing room at the periphery and along the 2nd and 3rd storey corridors that overlooked the atrium (Figure 3.4). A stage (Figure 3.5) was set up at the area where the man in the red coat (Figure 3.4) was performing and award recipients sat on the first few rows. Guests, colleagues, students and supporters of the award recipients would sit or stand within sight of the stage.

Figure 3.4. Tan Tock Seng Hospital atrium on level 1

Figure 3.5. Stage set up in TTSH atrium for Educator Award Ceremony 2013 on Teachers' Day

The award recipients were doctors, nurses and allied health professionals. In addition to their patient care work, they taught, supervised and provided education leadership commendably for young colleagues and health profession students. The ceremony started with performances, which in 2013 was delivered by children from the TTSH Child Care Centre (Figure 3.5). The NHG CEO then gave out the awards with the popular awardees receiving loud applause and cheers and even the occasional wolf whistle. At the finale during which the highest award recipients were announced, in addition to drum

roll, confetti was popped as well. The atmosphere was one of noisy, fun and joyful celebration. The ceremony lasted one hour. Many students and supporters hung around for photo taking sessions with award recipients and guests for another 30 minutes. In addition to the official photographer, a lot of photographs were taken with smartphone cameras.

(ii) Yong Loo Lin School of Medicine (YLLSoM) Teaching Excellence Award Ceremony

The YLLSoM Teaching Excellence Award Ceremony on 30 September 2013 was on a smaller scale. The Dean of YLLSoM and his team visited TTSH and the ceremony was held in the theatrette (see Figure 3.3). The screen on the stage showed slides of history of the award and profile of the award recipients. The schedule of events was simple: the Dean gave a review of the last academic year and TTSH's achievements, the award recipients were announced and the awards were given out by the Dean.

Unlike the Educator Award, YLLSoM award recipients were all doctors. Other attendees included hospital leaders, doctor-clinical heads, senior doctors and supporters of the awardees. Compared to the Educator Award ceremony, the atmosphere was more formal but not stiflingly so. The ceremony lasted 40 minutes followed by reception in the foyer. The Dean, his team and the TTSH doctors continued to talk and hang around in the foyer for a further 30 minutes. Aside from the official photographer, hardly any one used his or her smartphone camera to take photographs.

(iii) Research Award Ceremony

Compared to the Educator Award ceremony, the NHG Research Award ceremony on 27 September 2013 was not only grand but high profile as well. It was a key component of the opening ceremony of the NHG major annual scientific congress – the Singapore Health and Biomedical Congress (SHBC). It was held in a big conference centre outside of TTSH. The Singapore Minister for Health was the guest of honour. More than 2500 delegates, including luminaries from the healthcare systems from USA, UK, Australia etc., attended the opening ceremony.

The award recipients were doctors, nurses and allied health professionals. In addition to their patient care work, they had successfully completed research projects, which their peers had judged to contribute significantly to scientific knowledge and better care. After the welcome speeches, NHG and ministry leaders gave away the awards with the

Minister for Health giving out the highest awards. Polite and muted applause greeted the award recipients. Unlike the carnival-like atmosphere of the Educator Award ceremony, SHBC Research Award ceremony was sombre and stately.

The stage was grand and carefully set up, with a backdrop designed by professional designers to ensure that photographs and videos of Minister for Health, leaders, and award recipients would appear in the best light. There were photography and video recording teams from TTSH, NHG, the Singapore print media and mass media. The ceremony lasted one hour and thirty minutes. After the ceremony, the Minister for Health, leaders and award recipients were ushered to a tea reception during which the Minister chatted with the awardees. More photographs and videos were recorded during the reception with the occasional smartphone camera owner requesting a photograph with the Minister.

(3.2F) Other Event: Yong Loo Lin School of Medicine Vice Dean's Visit

The Vice Dean's visit on 12 August 2013 preceded the Teaching Award ceremony in September. I chose to observe this meeting because the TTSH doctors' reaction to the "report card" (see below) revealed beliefs and values that were difficult to observe otherwise. The Vice Dean represented the Dean during this visit to meet CMB, doctor-clinical heads and student placement coordinators. The visit served a few purposes:

- Inform TTSH of the "teaching performance" in the last academic year based on feedback from the students i.e. to share with TTSH, its teaching "report card"
- Seek verification and clarification on specific items in the "report card"
- Gather feedback from TTSH doctors about the YLLSoM curriculum, student placement, working with YLLSoM etc. and
- Lay the groundwork for the Teaching Excellence Award ceremony in September.

This meeting was held in a meeting room in the annex next to the main building and refreshment was served after the meeting. The meeting lasted an hour and some of the TTSH doctors held informal discussion with the Vice Dean for a further 30 minutes.

(3.3) Non-Participant Observation of Emails

My initial plan did not include non-participant observation, which was a noninteractive data collection category that "involves merely watching what is going on and recording event on the spot" (LeCompte & Goetz, 1982 p.394). In 1982 when LeCompte and

Goetz stated this definition, information technology and digital communication was in its infancy. Thirty years later in the 21st century, digital communication especially in the form of electronic mail i.e. email, was the norm in big organisations. When I started my data collection in August 2013, I wore my researcher "hat" and realised that a number of unsolicited TTSH emails arriving in my inbox could inform my study. For example, an email from the Institute of Geriatrics and Active Ageing announcing their inaugural master class in Medicine for Older Adults caught my eye. It listed speakers who were our geriatricians (i.e. doctors with specialist training in the health and care of the elderly), well recognised for their excellent teaching skills within TTSH and nationally. The half-day master class held on a Saturday was targeted at doctors with special interested in care of the older adult. The topics addressed some of the pertinent and difficult issues that doctors caring for the older adult, especially those above 65 years of age, faced. The pedagogy was the interactive case study format. On the same day another similar email arrived, from another group of colleagues, who announced a different course, targeted at different audience, focused on different topics and used a different but still engaging pedagogy.

When seen as a whole these emails had information that would enrich my study. As I read these emails, I made field-notes on and for them and saved them in electronic folders with the intention of coding and analysing them later. While the description of non-participant observation by LeCompte and Goetz (1982) referred to real in-person events that were bounded by time and space, the underlying principles were applicable to emails and digital communication: as a researcher, I merely watched what was going on in the digital world of my informants, recorded the events and made field-notes as part of my observation.

(3.4) Interviews with Informants

An informant is a member of the study site who can give good overview of the community (Gold, 1997) and "who is well connected and highly articulate" (Carspecken, 1996 p.50). Interviews with informants therefore were an important method to collect data with the focus on the informants' perspectives and their experiences. The criteria for selecting informants were doctors who had worked for the greater part of their career in TTSH, vis-à-vis:

(a) Hospital leaders including Chairmen of the Medical Board, each with 20 years' or more of working experience in TTSH, and a deep and wide appreciation of events affecting teaching and TTSH's culture,

(b) Clinician educators recognised as top teachers by students, residents and peers, and

(c) Clinician researchers respected by peers in TTSH and nationally as established researchers.

After drawing up the list of informants based on (a), (b) and (c) above, I sent an email to each of them to explain my study, the reason that their views would be helpful and request for their agreement to participate in my study, which included an interview with audiotaping. All of them agreed and dates were set for the one-to-one interviews. At the start of each interview, the informant read the Participant Information Sheet and signed the consent form – please see Annex B. The voluntary nature of his/her participation was emphasised and the confidentiality of his/her identity was also reassured. I completed 9 hours and 11 minutes of interviews.

Several issues with interviews deserved attention: (a) accessing the site, (b) deciding how to present oneself, (c) locating an informant, (d) gaining trust, (e) establishing rapport and (f) collecting empirical material (Fontana & Frey, 2005). My status as CMR enabled me to overcome many of these issues (Anderson, 2006) e.g. the study site was my work place and hence I had access to informants and data; I had worked in TTSH for many years and hence my knowledge of the study site helped to locate informants; I had long standing relationships with the informants and hence gaining trust and establishing rapport posed little problem. In TTSH where a personal mobile device e.g. smartphone was accepted as an essential tool for daily work, my smartphone served as an audiotape recorder and as an electronic memo pad to collect empirical material. For the issue of deciding how to present myself, I will discuss in a later section on reflexivity.

Carspecken (1996) highlighted the importance of interviewer's response and proposed a typology comprising (a) non-committal encouragements, (b) active listening, (c) non-leading questions and (d) paraphrasing with different levels of inference. Paraphrasing with low inference would be a restatement of the informant's response without adding any content and high inference might be the interviewer's verbalisation of suspected underlying

assumptions that were not explicitly stated by the informant. Because my informants were articulate and experienced in explicating their ideas, I hardly used high inference paraphrasing and was able to obtain rich data with encouragement, active listening, non-leading questions and low inference paraphrasing.

(3.4A) Hospital Leaders

Five hospital leaders including past and present CMBs were contacted for interviews – Drs C, E, H, N and W in Table 3.2 below. All of them agreed without hesitation and consented to audiotaping of the interview. The interviews with these hospital leaders were conducted using a semi-structured format - please see Annex A for the procedure and questions. Using open-ended questions followed by probing or clarifying questions, I invited the informants to recall and interpret policies, people and their stories, events, and practices related to teaching and teaching culture in TTSH. I wrote notes during these interviews to capture their key ideas.

Serial no.	Identity code	Category	Brief description	Duration of interview
1.	Dr A	Clinician researcher	An established researcher in TTSH beginning to gain national reputation	1 hour 35 minutes
2.	Dr C	Hospital leader	A leader in TTSH and a nationally recognised clinician teacher-educator	58 minutes
3.	Dr D	Clinician educator	A recognised teacher-educator in TTSH, NHG and nationally	33 minutes
4.	Dr E	Hospital leader	A leader in TTSH, NHG and Ministry of Health	60 minutes
5.	Dr H	Hospital leader	A leader in TTSH, NHG and Ministry of Health	1 hour 12 minutes
6.	Dr M	Clinician educator	A recognised teacher-educator in TTSH, NHG and nationally	37 minutes
7.	Dr N	Hospital leader	A post-World War II pioneer leader in TTSH and Ministry of Health	1 hour 20 minutes
8.	Dr O	Clinician researcher	An established researcher in TTSH, nationally and internationally	57 minutes

9.	Dr W	Hospital leader	A leader in TTSH and NHG, and a recognised clinician teacher in TTSH	59 minutes
			Total hours	9 h 11 minutes

Table 3.2. Interviews with informants for the study of TTSH's teaching culture

The careers of these hospital leaders spanned six decades and hence the interviews included some elements of career histories. Career histories are accounts of informants' professional lives with the historical element providing rich context to understand the informants' reaction to people and events (LeCompte & Goetz, 1982). The oldest of the hospital leader-informants was in his mid-80s and started work in TTSH in the 1960s. The youngest was in his early 50s and started work in TTSH in the mid-1980s. They ranged from storytellers with compelling narratives to factually correct reflective historians linking internal events to national directives, and passionate crusaders agitating for change.

(3.4B) Clinician Educators and Researchers

There were two clinician educators and two clinician researchers as listed in Table 3.2. The youngest informant was a clinician educator in his mid-30s with ten years of working in TTSH and the most senior was a researcher in his early 50s with more than 20 years of employment in TTSH. The semi-structured format described in Annex A was used. All of them were factually correct reflective historians passionate about their work. These informants were younger and had responsibilities that were different from those of hospital leaders, resulting in diverse views that provided rich data.

(3.4C) Informal Interviews

Due to the large number of observations and archival collections, I conducted 15 informal interviews to seek clarification on matters that arose. These interviews started with a brief introduction of my project and verbal consent from the informant to be interviewed. The questions focused on helping me to understand issues that arose from the observations, from field-notes or from reading the archival material. As an example: a Head of Department (HOD) made a comment relating to teaching during a CH meeting. It was inappropriate for me to ask my research question that had little to do with the on-going discussion. Hence, I waited for the end of the meeting before approaching this HOD to seek clarification.

These interviews were recorded on the electronic memo pad in my smartphone without audiotaping. The informants included medical students, residents and junior doctors, senior doctors, nurses, clerical and administration colleagues, all of who agreed to the interview. The duration of interviews ranged between 8 to 20 minutes.

(3.5) Archival Collections

Archival collections are noninteractive data. In many large organisations currently, work and life is recorded in the written text (Perakyla, 2005). Previously such texts would exist only in hard copies. Now, digital copies either co-exist or have become the only version that is archived. Two types of texts were included in this study: minutes of CH meetings and TTSH annual reports. Once again, my status as complete-member-researcher helped to gain access to these collections easily.

(**3.5A) Minutes of Clinical Heads Meetings 1992 to 2012**

A new chapter in the history of TTSH started in 1992 with the arrival of a new CEO and leadership structure, which started regular CH meetings. Clinical Heads meetings were the platform to discuss and make decisions about day-to-day issues at middle management level. Matters pertaining to teaching and education grew in complexity over these two decades in response to internal events and national directives from the Ministry of Health. The digital version of the minutes of every meeting listed in Table 3.3 had been carefully archived and provided much data for my study, which would be discussed in the Results chapter. The mean number of meetings grew 2.4 times and was paralleled by growth of TTSH as a hospital.

1990s		**2000s**		**2010s**	
Year	No. of meetings	Year	No. of meetings	Year	No. of meetings
1992	4	2000	6	2010	10
1993	5	2001	6	2011	11
1994	5	2002	6	2012	12
1995	4	2003	5		
1996	5	2004	6		
1997	4	2005	6		
1998	4	2006	6		
1999	5	2007	9		
		2008	10		
		2009	8		

Total	36	Total	68	Total	33
Mean	4.5 meetings / annum	Mean	6.8 meetings / annum	Mean	11 meetings / annum

Table 3.3. TTSH Clinical Heads Meetings, 1992 – 2012

(3.5B) TTSH Annual Reports

Annual reports also started in 1992 but unlike minutes of CH meetings, the copies for 1992, 1993, 1996 and 1997 were missing despite an extensive search. Annual reports selected events and information that the CEO and hospital leaders felt important to our staff and other stakeholders. Five annual reports were available: 1994, 1995, 1998, 1999 and 2000, ranging from 37 to 69 pages.

From 2000 onwards, NHG came into being and TTSH annual reports became subsumed into NHG annual reports. I did not include NHG annual reports as a source of data because the TTSH footprint in these reports was small and the content was either not relevant to my study or had better coverage in CH meeting minutes.

(4) Data Management and Analysis

For a year-long project, data gathering, management, coding and analysis is an iterative and continual process cycling between analysing and reflecting on the data, probing the data more deeply and writing memos that provide the scaffolding for this report (Creswell, 2009).

(4.1) Data Management

I wrote field-notes for the 94 hours and 55 minutes of observations. For those with discussions that were impactful, I transcribed the notes onto Microsoft Word and wrote memos within a few hours of the observations. For the rest, I re-read my notes and wrote memos within one to two days. The notes, transcriptions and memos were put into folders sorted by nature of observation and date. The transcription and memo-writing at times triggered questions and ideas that I followed up with informal interviews to clarify.

For the emails, I sorted into electronic folders: Events, Quality and Patient Safety, Research, Teaching and Training, Others. I collected more than 500 emails i.e. an average of 1.4 emails daily. Surprisingly, about 40% of the emails were related to Research. For the

impactful emails, I wrote memos and filed them with the emails. Otherwise at regular intervals I read the email collections and wrote memos.

I listened to the 9 hours and 11 minutes of audiotapes of key informant interviews 3 to 4 times, correlated with my handwritten notes and transcribed the interviews onto Microsoft Word. For the informal interviews with electronic notes on my smartphone, I wrote memos, sometimes adding to an existing memo when it was a clarification interview.

For the field-notes, emails, CH meeting minutes and TTSH annual reports, I read them as an integral whole and followed their chronological order (Emerson, Fretz & Shaw, 2011) to get an overall sense, to perceive any changes in my relationship with my subjects, to gain fresh insight and to begin recognising patterns.

(**4.2) Coding and Analysis**

I selected NVivo as the software to support this project because of the workspace and tools that it provided. The tools enhanced the sorting, arrangement, coding of the unstructured data, development and analysis of themes. The steps at this stage of the project were (i) open coding, (ii) writing code memos, (iii) selecting themes, (iv) focused coding and (v) integrative memos (Emerson, Fretz & Shaw, 2011) – these memos formed the nucleus of my manuscript eventually. I used magnitude codes, descriptive codes and in-vivo codes for this first cycle open coding (Saldana, 2009).

With an openness of mind, I began by coding the interview transcripts of the two oldest informants followed by coding the CH meeting minutes and then the annual reports of those years during which they served as hospital leader and/or CMB – an inductive process (Chiles et al, 2004). This provided the triangulation for my data. I repeated this practice of coding the key informant interview transcript-CH meeting minutes-annual reports as a bundle for the subsequent CMBs, constantly comparing the new codes with the established ones. The triangulation was most robust for the current CMB-key informant interview because in addition to the CH meeting minutes, there were field-notes from observation of Medical Board, CH meetings, and other events, and the email field-notes.

The memos that I wrote during coding helped me to link codes and events that were related in nature but separated by time, and pen half-formed ideas. The memo writing and linking of codes helped to sort and arrange the data even more such that the selection of

themes became easier and these processes were iterative. Initially I selected themes based on codes for which large amount of data had been assembled (Emerson, Fretz & Shaw, 2011). As coding-memo-writing progressed, priorities changed and some themes were re-ordered.

Focused coding started soon after I began selecting themes – the labour-intensive line-by-line interrogation of selected notes (Emerson, Fretz & Shaw, 2011 p.191). The difference between open coding and focused coding was for the latter, my coding had added elements of critique and interpretation in the light of the entire corpus of data. This was also reflected in the integrative memos that I wrote at this stage, many of which were built on the earlier field-note and code memos.

As the codes and themes emerged and re-ordered, I began to compare this "data-driven conceptual framework with a broad spectrum of academic literature in the organization and natural sciences" (Chiles et al, 2004 p.504) – please refer to Chapter II for the related literature. I found my work to align with the complexity theory and social worlds theory literature much better than others. At this point a deductive process was introduced in the analysis: from coding, categorisation and creation of themes, I began matching patterns observed in the data with patterns from the theories and added more material to the memos. At this stage, "analysis yielded a set of concepts grounded both in theory and in data" (Chiles et al, 2004 p.504).

(4.3) Presenting the Data

The career histories of my informants were linked to key events that shaped the teaching culture. I constructed a simple chronology display (Chiles et al, 2004 p.504) to present this data in Results (see Figure 4.1). The chronology display is an array of rows whereby each row represents one informant. The row starts at the year the informant begins employment with TTSH.

Just as informant interview transcript-CH meeting minutes-annual reports was coded as a bundle, integrative memos that made sense of the codes and themes in each bundle were woven together to make a coherent narrative. When I started on the third bundle of interview transcript-CH meeting minutes-annual reports, I adopted temporal bracketing concurrently, a technique that "…decomposes processes into successive eras

separated by discontinuities, a strategy particularly well suited to analyzing nonlinear organizing processes" (Langley, 1999 as cited in Chiles at al, 2004 p.505). The history of TTSH was "decomposed" into five eras (see Results), each inaugurated by an event or series of event:

(i) The first 100 years that began with the founding of TTSH

(ii) Post World War II years after the war ended

(iii) Four decades of culture building heralded by TTSH's transformation from a TB to a general hospital

(iv) The 1990s and 2000s inaugurated in 1992 when TTSH became a restructured hospital, and

(v) The present era foreshadowed by major changes in undergraduate and postgraduate medical education from 2009 onwards.

In the subsequent chapters, I present the five eras as a narrative in the Results chapter and an examination of the events via the lenses of complexity theory and social worlds theory in the Discussion chapter.

(4.4) Triangulation

I triangulated my data temporally and thematically. Temporally, I coded the key informant interview transcript-CH meeting minutes-annual reports as a bundle because they took place in the same time period. Thematically, I corroborated the data from different types of data e.g. field-notes and interviews, different data collection methods e.g. archival material and interviews, and different time periods e.g. past and present CMBs.

I used member checking as one more way to triangulate my data (Carspecken, 1996; Creswell, 2008). Initially I started with monographs based on some major themes and integrative memos and sent them to key informants (i.e. members) to seek their input about representativeness of the interpretations. At an advanced stage of writing, nearly complete drafts were sent to key informants and colleagues to seek further input.

(5) Quality Assurance

Good scholarship requires incorporating quality assurance into every step of the research process (Reynolds et al, 2011). I have incorporated the following practices for

quality assurance in this project: (1) systematic approach during the design, conduct, analysis and manuscript preparation stages, (2) transparency, (3) abiding by good ethical practice, (4) reflexivity, understanding role conflict and multi-tasking stress, and (5) and fair representation. I will elaborate on each of these.

(5.1) Systematic Approach During All Stages

Two thoughts guided my initial exploration for this project: is this a project worth doing for a doctorate degree and for my organisation? Discussions with my doctorate supervisors and TTSH colleagues helped to refine my ideas and shape some key aspects e.g. research questions, methods. Being systematic meant being thorough and adhering to requirements: I understood the intent and followed the requirements from National Institute of Education, Singapore, Institute of Education (IOE), London and NHG with an appreciation that such requirements were part of quality assurance. Discussion and guidance from my supervisors occurred regularly for all stages so that they were cognizant of my progress, while reminding me to keep to the timeline and not drift from the focus of my work. My TTSH colleagues provided comments and triangulation, which was an additional reality and quality check. The rest of this report documents the systematic approach I have applied to the project. During preparation of the manuscript, my supervisor arranged for a review by an IOE expert, which was very helpful in enhancing the quality of the final thesis.

(5.2) Transparency

Transparency relates to being open about every stage and especially about methods, data and publication. During thesis proposal, conduct of the research and manuscript preparation, clear and transparent descriptions of the following should be available for review: methods and how the research was conducted, data collection, tools used for analysis, results obtained from analysis and interpretation, and conclusions that were reached. The report should be truthful with biases and limitations acknowledged openly such that the integrity of the project, thesis and author are manifest. It should provide sufficient information and guidance about the research process to enable interested others to replicate the work.

The need for transparency had guided many of my steps in this project: selection of literature, data collection, management and archival, analysis and interpretation, tools used, discussion and conclusion, and finally during manuscript drafting.

(5.3) Ethics and Access

Researching my own organisation had the advantage of access but was also fraught with ethical dilemma despite approval from the Institution Review Boards to conduct this study. Gaining access to the study site and population to conduct fieldwork is usually discussed extensively in many articles and books. Gaining access refers to entering the world of my subjects in a manner that is ethical, appropriate and allows collection of data (Madison, 2012). Unlike other ethnographer-researchers, my CMR status meant that:
(a) I was already immersed in the study site and its culture before the study began i.e. my place of work was where my fieldwork was conducted, and
(b) I had legitimate and effective access to the study site and population.

However, legitimate access is not the same as ethical access, for example my decision to not include minutes of Medical Board meetings in data collection. As a Medical Board member since 2007, I have such minutes in my work-related electronic folder. However, there are sensitive matters with on-going discussion spanning several years that are inappropriate professionally and ethically to be included as data in my study, and hence my decision to not include medical board meeting minutes. Most medical board decisions affecting education would be translated into action items that were subsequently discussed at CH meetings – hence while I did not access the medical board meeting minutes, I was still able to access the content of related discussions.

As a CMR I have access to underlying the assumptions and taken-for-granted thought patterns of my informants beyond articulated beliefs and values (Schein, 2010) – what Anderson (2006) referred to as “insider meanings”. As members of the same organisation, I approximated the emotional stance of my informants (Adler & Adler, 1987) – a proximity that allowed understanding of much that was tacit in my informants and study site. Such access and proximity must lead to weightier next steps, which were: metacognition and reflection on TTSH’s and my insider meanings and assumptions, openness to bring these meanings and assumptions to the study, diligence to examine my

biases, values and interpretations as well as those of my informants (Anderson, 2006) in the light of the study context, and courage to subject them to the rigour of analysis because these tended to resist confrontation and debate (Schein, 2010). I believe this report documents the completion of these steps.

(5.4) Reflexivity, Role Conflict and Multi-tasking Stress

Reflexivity relates to the intricate balance between my status as a member of TTSH, as an ethnographer-researcher and my relationship with the informants, and how I affect them during interviews and observations, and vice versa. My TTSH membership gave me access not just to people, their values and assumptions but also to their vulnerabilities. These vulnerabilities were sometimes also bound with institution vulnerabilities - this made me paused to consider if such vulnerabilities should be incorporated into my findings and if so, how to represent them. There was no easy answer: on some occasions, ethical consideration guided my decision. On other occasions I went back to the informant, shared with him/her my dilemma and negotiated for a mutually acceptable solution.

Because I was comfortable with my informants and the observed situations, there was a risk of not paying sufficient attention, of being "blind" to certain aspects, of being less probing in my questions, analysis and interpretation, which would compromise project meticulousness. At times the realisation that I had not paid enough attention or had not been sufficiently rigorous came after the event. The field notes and memos therefore served as helpful reminders to reflect and apply an inquiring mind to the data, and if needed to go back to the informant for clarification. As an education leader, my work continued to influence decisions and shape TTSH's education mission while concurrently for this project, I was studying not just my organisation but my role and decisions. This led to many moments of contemplation and disquiet as I tried to resolve my internal role conflict.

Role conflict that is externally oriented came to the forefront during those medical board and CH meetings when I presented work-related proposals and simultaneously observed the proceedings of these meetings, including my presentation. After the first of such role conflict that caught me unprepared, I decided that I must be authentic as a TTSH member, which was the basis for my complete-member researcher (CMR) status, and defend my proposal and react as a member would. This inevitably led to multi-tasking stress.

Adler and Adler (1987 p.70) cautioned that “(b)ecoming a CMR entails putting considerably more time into the setting, but it also makes this time near-schizophrenic in its frenzied multiple focus” – the essence of multi-tasking. This was indeed true during meetings and events when I was a TTSH member and also a CMR to record my observation of several colleagues (tone of voice, body language, facial expression, choice of words, who spoke first, who was next etc.) debating an issue related to teaching and education and simultaneously listened to the content and flow of their discussion. Passive observation was difficult because as a member, I was expected to contribute to the discussion. Multi-tasking was necessary to prevent my research focus from fading out of awareness thereby abandoning my ethnographer-reseacher role and concentrating only on my member role, or vice versa. Expedient field-note and memo writing became critical to record my thoughts so that “the mutual importance of how something is said along with what is said or with the telling and the told” (Madison, 2012 p.34) were given equal weightage.

(5.5) Representation

Representation is one of two crises that ethnographers faced (Creswell quoting Denzin, 2008 p.474). Representation relates to the adequacy of depiction during the research process and in my manuscript, of the study phenomenon, about drawing attention to the voices and interests of the study population credibly, vividly, persuasively and meaningfully (Bishop, 2005). As a CMR ethnographer I am committed to make visible my researcher self and concurrently, to fulfil the duties expected of me as a member of TTSH. This led to the interesting situation where the need for me to keep sufficient distance in order to observe clearly was balanced by the need to be close enough to participate as a member (Kahn, 2011). Hence how I presented myself and what I represented to my informants and during observations was a key consideration.

The act of explaining my study, seeking written consent for interview and audiotaping helped to clarify my researcher role. Despite this, there was a difference in the interviews with hospital leader-CMBs, all of whom were my seniors, and the clinician-educators and researchers, who were my peers or near-peers. By referring to issues known only to members of TTSH the hospital leader-CMBs were aware that I shared insider meanings with them and concurrently, they were aware that my role as researcher was to

seek and not to provide answers.

My interviews with my peers on the other hand, witnessed several occasions when they sought my answer to their questions, and the interview was at risk of becoming an exchange of ideas. On all except one occasion, high inference paraphrasing (Carspecken, 1996) helped to reflect the question back to my peer-interviewee and the interview proceeded. On the one occasion when I answered a peer-interviewee's question and shared my idea, paraphrasing did not ease an impasse that I felt was impeding progress of the interview. During memo writing and coding, I reflected on this exchange and felt that there was more good achieved than harm done.

In the next chapter, I will discuss the results from my study.

Chapter IV. Results

This chapter presents the data and findings from the analysis of the data. I will link the findings to the theories in the next chapter. The findings traced the history of TTSH presented as five eras, each inaugurated by an event or series of event:

- The first 100 years that began with the founding of TTSH
- Post World War II years after the war ended
- Four decades of culture building heralded by TTSH's transformation from a TB to a general hospital
- The 1990s and 2000s inaugurated in 1992 when TTSH became a restructured hospital, and
- The present era foreshadowed by major changes in undergraduate and postgraduate medical education from 2009 onwards.

For the first three eras, interviews and archived historical accounts provided much of the data. For the fourth and present era, additional data were available from minutes of Clinical Heads meetings, 1992 to 2012. For the present era, my observations contributed one more source of data.

The event or series of events that gave birth to a new historical era also facilitated the emergence of a new order of teaching in TTSH (Chiles et al, 2004). The first four eras shed light on the question "How did Tan Tock Seng Hospital (TTSH) establish a teaching culture?" and the present era provided answers to "What is the impact on TTSH's teaching culture of transforming into an academic health centre?"

(1) The "Doing" Orientation

(1.1) The First 100 Years

Assumptions about the way human beings interact with their environment manifest in different orientations and activities (Schein, 2010). The "doing" orientation is one of such – an orientation that is pragmatic and sees its actors taking charge and intervening in their environment. A key informant summed up TTSH's "doing" orientation with this statement,

"…as a hospital we are quite focused on doing the task at hand" (Dr W, personal communication, Aug 12, 2014).

Tan Tock Seng Hospital (TTSH) was founded in 1844 and named as the "Chinese Pauper's Hospital" (Lee, 1978; Naidu, 2000; TTSH, 2015). The hospital later took the name of its founder Mr Tan Tock Seng, a merchant and philanthropist who donated several thousand dollars with one mission in mind – to provide care for the local community who had little access to healthcare in the 19th century when Singapore was a colonial outpost of the British Empire. The founder's act is an artefact i.e. a visible product of the organization (Schein, 2010) and a powerful legend that every new joiner must learn. A "doing" orientation undergirded this act that has since become a basic assumption (Schein, 2010) in the hospital. This mission would go on to be a rallying call to galvanize TTSH on several epochal points during the subsequent 170 years.

While not much has been written about TTSH during World War I (1914-1918), some of its narratives during the Japanese Occupation (1942-1945) in World War II (WWII) are well documented (TTSH, 1994b; Chew, 1998; Naidu, 2000; Chew, 2007; Chew, 2008; TTSH, 2015). The hospital was organised on a two-tier service whereby the British doctors were in leadership positions and the local doctors were not considered their equals (Lee, 1978; Chew, 1998; Chew & Chee, 2005). The Japanese Occupation disrupted this arrangement by interning the British doctors (Chew & Chee, 2005; Sheares, 2005; Chew, 2007) paving the way for local doctors and staff to step up to lead the hospital, with TTSH being the bigger of two hospitals serving the local population. Dr Benjamin Sheares[1] described the situation thus, "The Japanese invasion caused a general awakening of the people of Malaya. In no small measure, the local graduates contributed to this awakening despite having been deliberately excluded from the higher echelons of the medical service" (Chew, 2007 p.882). Three incidents illustrated this awakening:

1. The ravages of war - death, dreadful diseases, scarce resources and hardship united the doctors and staff to survive the war together and care for patients (Chew, 2008),
2. While formal medical education that started in 1905 ceased during the war years, bedside teaching became the norm whereby the doctors came together to discuss their

[1] Dr Benjamin Sheares (1907-1981) graduated from the King Edward VII College of Medicine in 1929, became Singapore's first professor of obstetrics and gynaecology and after an illustrious career in medicine and academia, became Singapore's 2nd president from 1971 to 1981.

patients and learn from one another (Chew, 2007), laying one of the foundation stones for TTSH's teaching culture, and

3. A group of local doctors from TTSH and Kandang Kerbau Hospital wrote a letter to London requesting the Secretary of State for the Colonies to remove the two-tier service and advocated for equal treatment of local and British doctors (Chew, 1998; Chew & Chee, 2005).

Conviction and courage to do the right thing in the face of adversity had been layered on top of the "doing" orientation, strengthening a key underlying assumption (Chee, 2003; Schein, 2010) in TTSH.

(1.2) The Post WWII Years

After World War II, pulmonary tuberculosis (TB) became the scourge (Heng & Tan, 1991; TTSH, 1994b; Chew, 1998) and in 1945 TTSH was designated as the hospital to treat TB (TTSH, 1994b; Chew, 1998). For more than a decade TTSH focused on TB. With concentration and a huge caseload, knowledge, experience and expertise built up quickly, leading to collaboration with the British Medical Research Council to pioneer various treatments that would result in higher cure rates and better compliance - treatments that would go on to garner World Health Organisation recognition (TTSH, 1994b; Chew, 1998). TTSH was also tasked to take care of the poor and needy (TTSH, 1994b), many of who had PTB. TTSH once again demonstrated its "doing" orientation because the leaders turned not only to nurses but also to nuns to care for the large number of patients and to ease the staff shortage: they enlisted help from nuns from the French Convent in Ipoh, Malaysia and Roman Catholic missionary nurses forced to leave communist China. TTSH also created a new grade of nursing staff known as Assistant Nurses to perform basic nursing work that the School of Nursing adopted later (TTSH, 1994b), a grade that withstood the test of time and is today a sizeable component of our nursing workforce nationally.

With improved sanitation, vaccination, nursing care, drugs and newer treatment, TTSH brought tuberculosis under control slowly but steadily (Heng & Tan, 1991; TTSH, 1994b). Concurrently as TB rates declined, demand for general medical and surgical care escalated as Singapore's population grew. From the early 1960s onwards, the "doing" orientation drove TTSH to transform: conversion of TB wards to general medical wards and

completion of a $1.5 million state-of-the-art operating theatre for chest surgery whereby such operations were a spin-off from its expertise in TB treatment.

To cater to a growing population with diverse healthcare needs the hospital was taken over by the government in 1961 (Naidu, 2000). This paved the way for the Health Ministry to announce in 1966 that while TTSH continued its work on TB, it would become a general hospital (TTSH, 1994b; see Figure 4.1) and offer such healthcare and services that the general population needed, thereby effectively closing one chapter in the history of TTSH and opening a new chapter.

(1.3) TTSH's Modern Day Founding Fathers

The development of TTSH from the late 1960s to 1990s was influenced by three groups of doctors: (i) a group who graduated in the early 1950s, (ii) another who graduated in the late 1950s and early 1960s, and (iii) the third who graduated in the late 1960s and early 1970s. What they had in common was being trained by the British and local physicians in TTSH, coming to work in TTSH and committing a life-long career to the hospital or to the Health Ministry. The first group was the chest physicians who worked tirelessly to bring TB under control. By the mid-1960s when TB infection rates started to improve Singapore started on her road to independence. Upon gaining independence, the new Health Ministry needed doctor-administrators to plan and deliver healthcare for the nation and these chest physicians were called upon to serve. They brought to the Health Ministry the ways of thinking, relating and working that were developed in TTSH such that,

"At one time they said that HQ i.e. MOH was dominated by the TTSH mafia because Yeoh Seang Aun[2] was DDMS[3], James Supramaniam[4] was DDMS, I was DDMS and Andrew Chew[5] also had very strong connection to TTSH" (Dr N, personal communication, Jul 16, 2014). After developing TTSH, this group continued to shape TTSH at a national level via the Health Ministry policies.

The first group influenced the second as seniors and clinical teachers in TTSH, a situation described thus, "Although there were 3 units I was impressed that the staff worked

[2] Dr Yeoh Seang Aun (13 June 1920 – 21 May 2013)
www.annals.edu.sg/pdf/42VolNo7Jul2013/V42N7p371.pdf
[3] DDMS is Deputy Director of Medical Services whereby the Director of Medical Services is the highest administrative post that a medical doctor will hold in the Health Ministry
[4] In Memoriam: Dr JMJ Supramaniam www.annals.edu.sg/pdf/38VolNo3Mar2009/V38N3p288.pdf
[5] Dr Andrew Chew Guan Khuan (1929 – 2012)
www.annals.edu.sg/pdf/41VolNo4Apr2012/V41N4p182.pdf

so closely as a team, covering each other willingly in their duties and delivering excellent care. I could not help thinking these were wonderful values inherited from their predecessors during the War Years*."* (Chew, 1998 p.133). Many of these young doctors in the second group were awarded scholarships to pursue further training overseas (Haseltine, 2013) and to sit for the UK Royal Colleges membership examinations. They passed their examinations, completed their studies in the UK and brought back to Singapore ideas for the next phase of growth. They became heads of departments to set the strategic direction for their departments and for TTSH. Coupled with the fact that these doctors were civil servants on a pension scheme, they planned with a long-term view. One key informant described thus,

"The other good thing was that the first four heads of the medical units when I first came in were all pensionable staff. That means they had no idea that they were going to leave. They were here to stay and therefore they could think long term, they could plan long term to make sure that the hospital developed, make sure that the specialty they were charged with, developed, blossomed and grew" (Dr E, personal communication, Jul 22, 2014).

Nurtured and influenced by the first two groups as medical students, the third group too chose to work in TTSH upon graduation. Their maturation as doctors and healthcare leaders paralleled the growth of Singapore from third world to first world and therefore, this third group witnessed and contributed to some of the greatest changes in healthcare. Interestingly it is this third group that individually and collectively, became aware of and gave words to describe their experience of the culture in TTSH,

"Heads like Dr Poh and Dr Feng were very interested in teaching so they themselves set the examples and the rest follow", "When I first came I was quite happy to find that there was a culture of teaching. The four department heads of Medicine Unit I, II, III and IV were all heavily involved in teaching…that was the setting in TTSH. All these different specialists were very happy and keen to teach" (Dr E, personal communication, Jul 22, 2014) and

"And so we have a strong culture from that early days. Education was one of the main things here, always been focusing even when we first came, the heads all stressed on education" (Dr C, personal communication, Jul 7, 2014).

The work, contribution and career of the third group of doctors is intricately linked to the building of the teaching culture in TTSH that will be discussed below.

(2) Four Decades of Culture Building

(2.1) Singapore's First Teaching Hospital

Tan Tock Seng Hospital's contribution to medical education started in 1905 when the Straits and Federated Malay States Government Medical School started (Naidu, 2000; Tan, 2011). TTSH was the first and main teaching hospital and graduated Singapore's first batch of medical students in 1910. This was in part facilitated by the move of the hospital to new buildings along Moulmein Road in 1909 with an increase in the number of beds (Naidu, 2000), increase in staff numbers and resources (TTSH, 1994b). World War II interrupted the medical school. It was only when the war was over that studies resumed for the students among who were Yeoh Seang Aun and James Supramaniam, who would subsequently become chest physicians and hospital leaders of TTSH, and doctor-administrators in the Health Ministry.

Medical students were not rotated to TTSH when it was a TB hospital. TTSH only re-established itself as a teaching hospital for medical students 15-16 years after the end of WWII, in 1961 through the effort of Dr N (see Figure 4.1) and his peers (TTSH, 1994b; Chew, 1998). Dr N was a TTSH chest physician who concurrently attended teaching sessions in the General Hospital[6] where medical student clinical teaching had started – a boundary worker between TTSH and General Hospital. Desiring to bring clinical teaching back to TTSH Dr N et al garnered support from various people that finally brought students back to TTSH in 1961 (Chew, 1998). This re-opening of the TTSH doors benefitted the third group of doctors who graduated in the late 1960s and early 1970s, illustrated by a key informant's comment,

"I came here as a student in 1963-64 – when I first came here I notice that the teachers, the physicians were very dedicated." (Dr C, personal communication, Jul 7, 2014). This third group of doctors gave words to their experience of learning in TTSH and named it "teaching culture".

[6] The General Hospital is the forerunner of the current Singapore General Hospital

(2.2) Factors that Built the Culture

To examine the building of the teaching culture, the recollection and information from key informants was instrumental because archived meeting minutes did not date back far enough. The informants' careers spanned five decades starting from the 1960s. My original intention was to interview ten key informants but due to health reasons, the interview with Dr S could not be conducted. Figure 4.1 depicts the informants' careers in TTSH whereby each row represents one doctor. The row starts at the year the doctor begins employment with TTSH. For the informants who are Chairmen of Medical Board (CMB) the grey box represents the period of their chairmanship: Drs E, S, C, H and W. Dr W's chairmanship of the Medical Board is on-going at the time of writing, represented by * in Figure 4.1. Drs A and L are clinician researchers and Drs O and D are clinician educators.

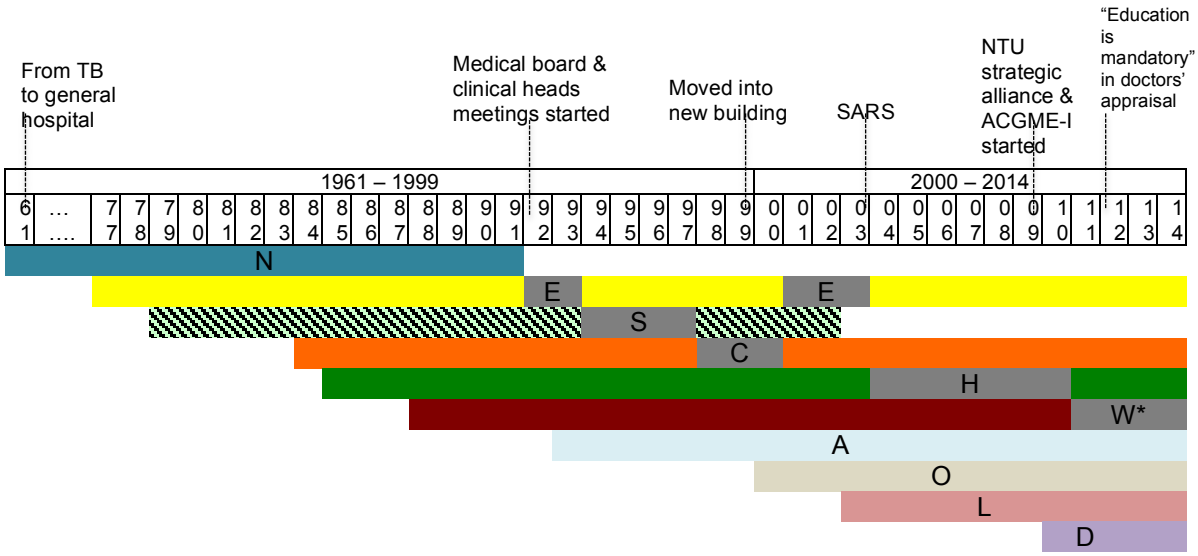

Figure 4.1. Informants' careers and some key events in Tan Tock Seng Hospital

(2.2A) Teachers and Role Models

"The quality of an education system cannot exceed the quality of its teachers" (Barber et al, 2012 p.39), which holds true for education in schools and for clinical education in TTSH too. Spontaneously and unanimously, all the key informants named the teachers, i.e. the doctors, as the most important factor that built the teaching culture.

Alongside their doctoring work, i.e. caring for patients, the doctors teach and love doing so. This was seen from the oldest informant whose experience of learning and being taught dated back to 1950s and 1960s, who said,

"*One of the reasons our clinical medicine is very strong is because of our teachers*" (Dr N, personal communication, Jul 16, 2014) to the youngest informant who said,

"Dr C – obviously a role model for many of us – because of his very clear passion that did not seem to be the result of a formal institutional practice or requirement or remuneration; it was because he loved the teaching. Because he loved to teach, we loved to learn from him" (Dr D, personal communication, Apr 30, 2015). The informants stressed repeatedly the dedication and personal commitment of the clinical teachers they have experienced or witnessed e.g.

"*We have a lot of fairly senior people and they were very much involved in teaching*" (Dr C, personal communication, Jul 7, 2014). This was externally validated by the feedback from medical students (Chew, 1998) that was systematically collated by the National University of Singapore as observed by an informant,

"*So the good thing was that the students posted here gave excellent feedback on*

our teachers, what was taught to them and the way they were treated" (Dr E, personal communication, Jul 22, 2014).

Age and seniority were not barriers to teaching. Consultant grade senior doctors and mid-grade doctors alike take on teaching willingly e.g.

"*TTSH's early reputation as a place to work very hard, to have very good learning experience, to have senior clinicians who will impart their knowledge and skills in the work place…*" (Dr W, personal communication, Aug 12, 2014) and

"*At that point all registrars*[7] *took part in clinical training. Once a week, one registrar would take a group of postgraduate doctors in medicine to do a ward round-short case kind of teaching*" (Dr E, personal communication, Jul 22, 2014).

In the process of learning, students and young doctors saw in these clinical teachers knowledge, skills, attitudes and behaviours that were inspiring and worthy of emulation, and hence the label "role model" was also often given to these teachers. Two informants provide insight into this aspect,

"*Those were the days when we rounded*[8] *on every patient, touched every patient, resuscitated every patient that could be resuscitated*" (Dr W, personal communication, Aug 12, 2014) and

"*TTSH always has this kampong spirit*[9] *and teaching and the teacher heart is very consistent with the kampong spirit where the imparting of not just skills and knowledge but of values, of making sure the learner is alright*" (Dr O, personal communication, Apr 29, 2015). The kampong spirit approximated the Clan culture.

The entwining of the descriptors "teacher" and "role model" is perhaps mirrored at a deeper level by the intricate linkage of two roles: medical expert and scholar. CanMEDS, a seminal project by the Royal College of Physicians and Surgeons of Canada (RCPSC, 2015) advocates a framework of seven roles of a doctor whereby "A competent physician seamlessly integrates the competencies of all seven roles." These seven roles are Medical

[7] A registrar is a grade of doctor in his/her final 2 to 3 years of postgraduate specialist training, typically in the late 20s or early 30s and would have graduated from medical school 5 to 8 years prior.
[8] "Rounded" refers to reviewing and making treatment decision for patients during morning and evening ward rounds
[9] Kampong spirit is a Singapore term, "It is the spirit of mutual consideration, of neighbours knowing that even as preferences differ from household to household, there is understanding and compromise. Being friends with our neighbours and being thoughtful towards one another can help prevent conflict and smooth things over when tensions arise." Retrieved 18 Nov 2015 from http://kindness.sg/the-kampong-spirit/

Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar and Professional (Figure 4.2). The Medical Expert is the central and integrating role. The role of a Scholar encompasses the concepts of life-long learning, teacher, evidence-informed decision-making, and research, and specifically “As teachers they facilitate, individually and through teams, the education of students and physicians in training, colleagues, co-workers, the public, and others.” (RCPSC, 2015)

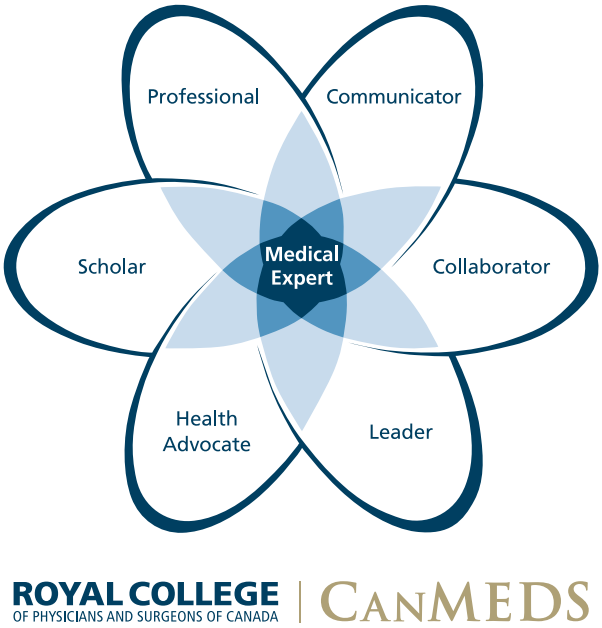

Figure 4.2 CanMEDS Diagram. Copyright © 2015 The Royal College of Physicians and Surgeons of Canada. http://rcpsc.medical.org/canmeds. Reproduced with permission.

The development of medical experts is in part related to the pragmatic “doing” orientation (Schein, 2010) that sees its actors taking charge and intervening in their environment and in part the enduring belief in the founder’s vision to provide care for the poor and needy. The nascence of scholar-teachers perhaps dated to WWII when the doctors – medical experts – came together to discuss their patients and learn from one another and bedside teaching became the norm (Chew, 2007). Hence the austere conditions of WWII laid an important foundation stone for the teaching culture – the intertwining of the medical expert role with that of scholar-teacher in each of TTSH’s key doctors. The equally harsh and challenging circumstances in the post war period did not destroy this foundation but created opportunities for further building. This was evidenced by the acts and

accomplishments of the first two groups of the modern founding fathers such that by the time the third group arrived on the scene, they could give a name to their experience: TTSH's "teaching culture".

(2.2B) The Patients in the Pauper's Hospital

The next most frequently cited factor that helped built the teaching culture was the availability and accessibility of TTSH patients for students' and junior doctors' learning and teaching. Two informants explained,

"*We have a wealth of teaching material. One of the reasons is that TTSH was meant to be the hospital for the sick poor. Because of that there is a wealth of material and the teachers taught good clinical medicine by the bedside. The school was well known for its clinical expertise and bedside medicine*" (Dr N, personal communication, Jul 16, 2014) and

"*(F)rom the very early days, this was an institution for teaching and training. Although people may not like the word 'paupers' hospital', 'people's hospital', it has been used for medical students' benefit – that was how the teaching culture first started*" (Dr C, personal communication, Jul 7, 2014).

Some background is needed to comprehend these statements. The General Hospital was set up in 1821, two decades before TTSH. It served the British and other European officials, tradesmen, and the British troops and sailors. This arrangement continued for a century till 1926 before the General Hospital opened its doors to local patients. The wards were organised based on gender and socioeconomic status of the patients (Lee, 1978). As such when the medical school started in 1905, the General Hospital patients were deemed to be unsuitable for students' learning. Hence, TTSH being the only other general hospital and a hospital for the local and poor patients was selected for teaching and learning. The availability and accessibility of patients coupled with dedicated clinical teachers went a long way to enhance learning. In that bygone era, the patient's voice especially that of the poor and needy was unlikely to be recorded as noted by an informant,

"Sometimes the patient may have felt aggrieved or felt hurt without me knowing. In those days, they probably did not complain" (Dr E, personal communication, Jul 22, 2014). Hence it was an assumption that patients were willing partners in the students' and junior doctors' learning journey.

(2.2C) Focus on the Mission

The "doing" orientation and the belief in Mr Tan Tock Seng's vision translated into the focus and perseverance that the doctors and the hospital brought to its mission. Its first mission was to deliver good clinical care, which it did. As described previously whether it was battling TB in the post war years, transitioning to become a general hospital in the 1960s, expanding services rapidly in the latter years, the focus on mission – delivering good care (i.e. service) – had been unwavering. When the first and second groups of the modern founding fathers intertwined the role of medical expert with that of teacher, teaching and education alongside clinical care became part of the mission that all were expected to focus on. This could be seen through the eyes of the informants,

"In our earlier days, it was necessary to ensure those who are practising here have skills to be effective practitioners. Because of the type of work that was involved, the relative absence of perhaps great academic or pretentions to academia or research, a lot of the culture was related to be good as clinicians, being effective as clinicians. Its part of on-the-job-training, the kind of mentality is generally – the kind of environment and culture – is generally very supportive of developing very good clinicians. You can call that education and others call it on-the-job-training, or even self-serving to the people who teach because your subordinates are effective and you don't have to look after them so well." (Dr W, personal communication, Aug 12, 2014) and

"From the management side…what I mentioned to him (Dr Lim Suet Wun, CEO of TTSH, 2002-2011) then was there would always be competition for manpower, and for doctors to join you. And one of the most important things that actually influence the decision of where they choose, and whom they choose to work with, will always be the experience and how they were treated when they were students." (Dr H, personal communication, Jun 26, 2014)

Education, co-located with clinical service as TTSH's mission, has benefitted from the doctors' focus but such is not the case for research, as described by an informant,

"*Our hospital is concentrated on service*. *Research is probably the third or fourth or fifth thing after admin, education – service still comes first"* (Dr A, personal communication, Apr 27, 2015). This impact on research will be elaborated later.

(2.2D) Students and Young Doctors

The willingness of the students and young doctors to learn and to fit in also contributed to the teaching culture. In that bygone era, the student's voice, like the patient's voice was not recorded. Hence their willingness could only be inferred from informants' comments about themselves as learners and about students and young doctors in general,

"When I first came I was quite happy to find that there was a culture of teaching" and *"Those (medical students) who came really benefitted because they were really well managed, taught, loved and many came back as doctors to work with us. That positive cycle remained with us in the long term."* (Dr E, personal communication, Jul 22, 2014) and

"Some of our early roots were based on needs. In other words you were working so hard that you needed your subordinates to be very well trained and your subordinate understanding the work culture and potentially having good role models, can only emulate. Those who cannot emulate had to eventually leave because they do not fit in." (Dr W, personal communication, Aug 12, 2014)

These comments fit well with Schein's (2010) description of an organisation's need to define its boundaries and the inclusion and exclusion criteria to decide who is in and who is out. Just as TTSH has explicit and tacit selection criteria, the students and young doctors make deliberate choices about TTSH, its work, people and culture. Only those who were wiling chose to stay and for those who stayed, they would emulate and fit in – critical decisions and actions that set up positive feedback loops that reinforced the existing culture.

(2.2E) Enabling Factors

Several factors enabled and encouraged the work of doctor-teachers and hence the culture building.

(i) Government Pension Scheme

The first was the Government Pension Scheme that was influenced by the British model. Up till the 1980s, all graduating medical students joined the Health Ministry as doctors and were categorised as civil servants. As civil servants, they were automatically enrolled into the Government Pension Scheme. This was the case for the modern founding fathers that graduated between the 1950s and 1970s. Referring to his predecessors, an informant said,

"The old doctors who were on the pension scheme meant they were here to stay. Very few had any thought of leaving for private practice…Therefore they stayed the long haul. They were very focused...they were committed, they were here for the long haul, therefore planned a longer vision and (saw) it through" (Dr E, personal communication, Jul 22, 2014). The doctor's pension remained intact so long as the doctor remained employed by the Health Ministry till retirement and did not resign. It is conceivable that the security of pension after retirement and the disincentive of losing their pension influenced the founding fathers to devote their career to discharge their responsibilities in TTSH fully.

(ii) Positive Feedback

Positive feedback is critical in the entrenchment of culture, as seen from the informants' perspectives,

"Actually it is based on internal satisfaction. I remember many years ago I came up with this – I call it my own theory of cheap thrills (laughter)...because it is one of the few jobs where we actually see the outcomes, the results and we can see gratitude. If you do a round[9] and it is a difficult complex (patient) that the juniors cannot come to an answer, you can explain and tell them, show them the diagnosis, show them how you come to it and show them the way in which they can get it in future by themselves. (When) they can actually see it, they look at you in awe and it is instant gratification. We get it when we teach, we get it when we do the round, and we get it when we looked after our patients who are thankful to us all the time." (Dr H, personal communication, Jun 26, 2014) and

"Because he (Dr C) loved to teach, we loved to learn from him" (Dr D, personal communication, Apr 30, 2015). Feedback from the learners and recognition helped to encourage the clinical teachers,

"*The telling thing is how the students see us. Getting more feedback from the students to give a more accurate picture to know what exactly we are doing. When we say we are good we like the confirmation and assurance that the students actually value. It is not just undergraduate but also postgraduate students", "So the good thing was that the students posted here gave excellent feedback on our teachers, what was taught to them and the way they were treated*" and "*At TTSH level we started giving awards to good teachers – the best teacher award and so on*" (Dr E, personal communication, Jul 22, 2014).

(iii) Absence of Distractions

Two factors because of their absence helped the teaching culture to take root and blossom.

(a) Research

After WWII and during the TB years, TTSH concentrated on clinical work and TB research and did not teach medical students. The TB research was recognised and supported by the British Medical Research Council (Chew, 1998) and had little to do with the local university i.e. University of Malaya, the forerunner of National University of Singapore. Hence for 15-16 years after WWII, the local university had minimal education and research interaction with TTSH. When medical students returned to TTSH for clinical education in the early 1960s, the university's request was for TTSH to teach. There was possibly little or no request for TTSH to take an active role in supporting the university's research mission. Two informants made a similar observation independently on this aspect,

"*Many of us find them (i.e. the doctors) very dedicated because sometimes when you are not in the main university, you tend to be even more focused, worked even harder. That culture has been even (during) our time. Many students do like to come here*." (Dr C, personal communication, Jul 7, 2014) and

"In our earlier days, it was necessary to ensure those who are practising here have skills to be effective practitioners. Because of the type of work that was involved, the relative absence of perhaps great academic or pretentions to academia or research, a lot of the culture was related to be good as clinicians, being effective as clinicians." (Dr W, personal communication, Aug 12, 2014)

It was not that research did not exist in TTSH between 1960s and 1990s but it was small scale and supported sub-optimally. Clinical work and teaching were emphasised and research did not become a distraction.

(b) Private Practice

In addition to the Government Pension Scheme that helped to keep doctors within the public and government hospitals, the socioeconomic environment in Singapore between 1960s and 1980s (Figure 4.3) was not conducive to lure the doctors out into private practice.

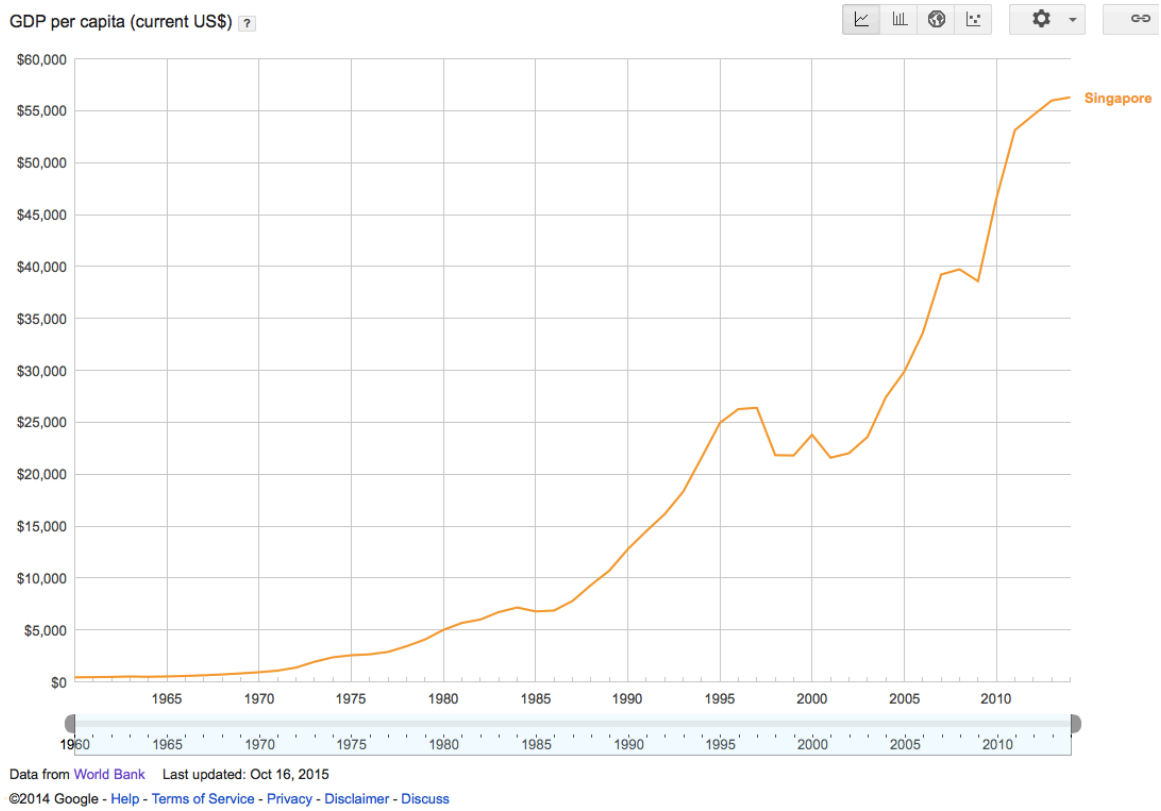

Figure 4.3 Singapore's GDP per capita 1960 – 2014

Using Gross Domestic Product[10] (GDP, Figure 4.3) as a surrogate, it was conceivable that between 1960s and 1980s, the average Singapore household would not have much disposable income to afford private specialist care, which was and still is more expensive compared to public healthcare. This was an important disincentive for doctors within the government hospitals when they evaluated the risks of leaving for private practice. Without the lure of private practice, TTSH benefitted from the doctors who stayed, worked and taught with dedication.

(2.3) Facilitative Leaders

Leaders who are collaborative and supportive to ensure that their employees are "fully equipped, materially, and educationally, to work organically" (Ezzamel et al. as cited in Ellinger & Bostrom, 1999 p.754) are considered facilitative. TTSH had facilitative leaders long before the term "facilitative leadership" was coined. The oldest informant reported that his supervisor, Dr Yeoh Seang Aun knew of his interest in medical education and facilitated his development. Facilitative leaders continued to lead especially in the 1990s when the third

[10] The GDP is one of the socioeconomic indices that has been tracked historically unlike e.g. household income for which data is available only from the 1990s onwards

group of founding fathers were heads of departments and chairs of the medical board. These chairs of the medical board were paired with the Chief Executive Officers (CEO) – all of who were medical doctors, and were equally facilitative. The CEOs did not train in TTSH during their postgraduate years but on taking up the leadership role, appreciated and supported its culture. The informants acknowledged the contribution that they made,

"I think when I was CMB, Judy Lim[11] was my first CEO and after that it was Luisa[12] and then Suet Wun.[12] So Judy herself being a doctor, Luisa also being a doctor and Suet Wun also a doctor, they were supportive of teaching activities. Knowing the history of TTSH when they joined us, they said yes, we have this huge heritage that we must preserve." (Dr E, personal communication, Jul 22, 2014) and

"The second was our NHG role in developing a proper foundation for pedagogy...that involves a lot of facilitative leadership from the cluster, from Suet Wun, from Philip[12] to provide the funds, to make these things a reality" (Dr W, personal communication, Aug 12, 2014). Declaration of support for education by these leaders during big group meetings e.g. Clinical Heads lent weight, "CMB summarized the key perspectives. Firstly, that education becomes recognized as a major focus of TTSH is inevitable and a welcomed 'problem". [CH 2009d] Facilitative leaders are important in providing the resources to the clinical teachers and supporting the teaching culture. Unfortunately the same fate was not shared by research in TTSH.

(2.4) Manageable Work Load

After WWII to the 1980s, Singapore's population was young (see Figure 4.4a-c), healthcare needs were different and patient expectations were less demanding. Communicable diseases, maternal conditions, perinatal conditions and nutritional deficiencies as a group led to 55% of deaths in 1950 but only 15% in 1980 (Lim, 2013). This was matched by an increase in non-communicable diseases as a cause of death i.e. lifestyle and chronic illnesses e.g. diabetes mellitus, hypertension: 41% in 1950 to 78% in 1980 (Lim, 2013).

[11] Dr Judy Lim was Chief Executive Officer (CEO) TTSH from 1991 to 1997, Dr Luisa Lee from 1997 to 2002 and Dr Lim Suet Wun from 2002 to 2011
[12] Professor Philip Choo was one of the Chairmen of Medical Board

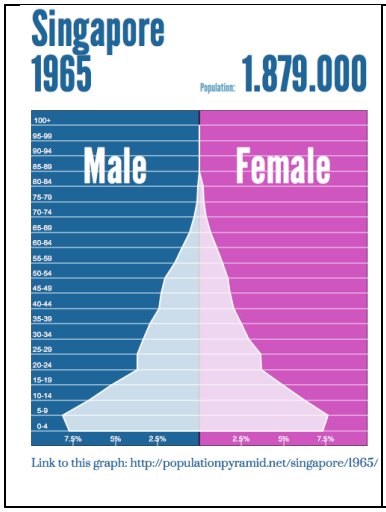

Figure 4.4a 1965

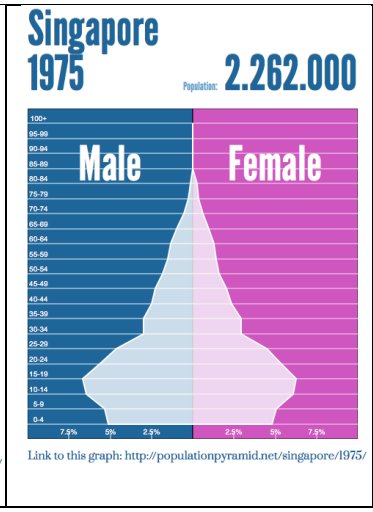

Figure 4.4b 1975

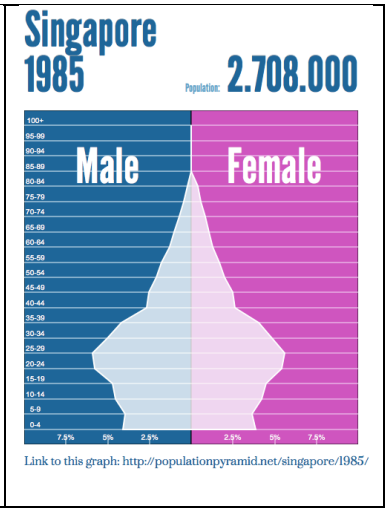

Figure 4.4c 1985

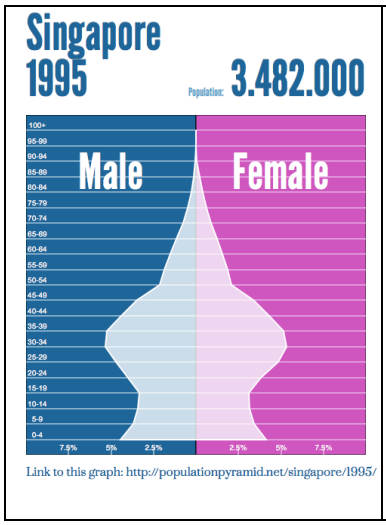

Figure 4.4d 1995

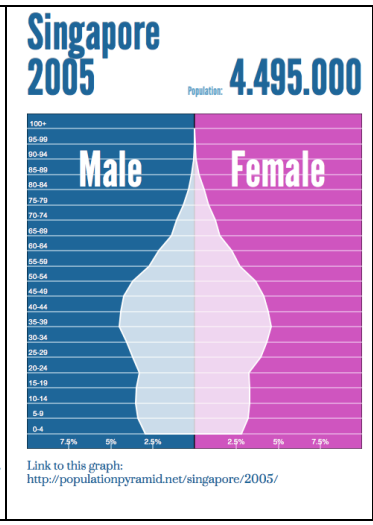

Figure 4.4e 2005

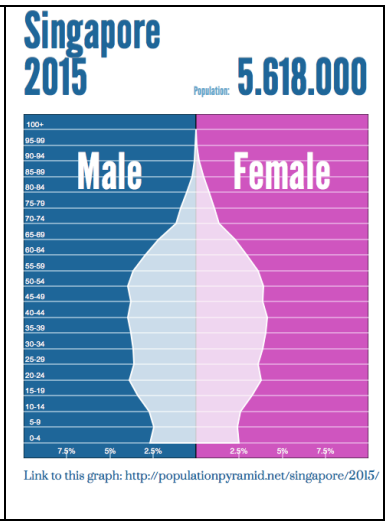

Figure 4.4f 2015

Figure 4.4 Singapore Population Pyramids 1965 - 2015. Retrieved on 3 Dec 2015 from http://populationpyramid.net/singapore

Communicable diseases were easier to treat and the number of treatment episodes was fewer, which translated into less demand on doctors' time. Even when non-communicable diseases started climbing in 1970s and 1980s, the afflicted patients were not complex: they either did not survive long with such illnesses or had only one or two of such illnesses. Hence, though the epidemiology of illnesses was changing and burden of work was increasing, the doctors felt that they were able to cope. In the words of an informant,

"In the early days, things were more quiet. Teaching and a bit of research take quite high priority in addition to patient care because there was time…Actually it was a very nice

feeling. But over the years, the pace of work crept up and became more and more difficult." (Dr E, personal communication, Jul 22, 2014).

Unlike the present, the Health Ministry demanded less in terms of hospital performance and health outcomes, contributing to the feeling that work was manageable in those decades. "Work was manageable" was a critical perception for the doctors to continue to care for patients and teach the next generation of doctors.

(3) Surviving the 1990s and 2000s

Singapore went through rapid changes in the healthcare landscape in the 1990s and 2000s and within TTSH the change was turbulent due to the factors discussed below, summarised by an informant,

"We were working under relatively austere environment and made gradual transitions from old to new" (Dr W, personal communication, Aug 12, 2014). This strained the resources available for teaching and research, with research getting the short shrift.

Clinical Heads meetings started in 1992 and hence the results presented in this section drew on the meeting minutes and informants' recollection substantially. Where relevant information from secondary sources have been included.

(3.1) Increase in Workload and Complexity

Figure 4.4c-f illustrates the rapidly ageing population in diagrams from 1990s onwards, translating into the reality of not just many more older patients but more complex patients too (Haseltine, 2013). They sought care at TTSH such that the workload grew at a worrying rate. Each patient was more complex: more chronic illnesses with sub-optimal control, more medications, more likely to suffer a second heart attack or stroke or cancer, more need for and dependence on professional care, more money needed and more likely to stress/distress the family. To cope with the complexity, more clinical and support departments were created. Each head of department (HOD) has a seat in the Clinical Heads meetings and hence a count of the number of attendees provides a snapshot of TTSH's growth in manpower to support the workload (Table 4.1).

	Doctor-HODs		**Non-doctor HODs**	
Year	Number	% Change	Number	% Change
1992 1st meeting	17	Inaugural year	4	Inaugural year

1995 1st meeting	19	11.7%	7	74%
2000 1st meeting	23	21.1%	7	0
2005 1st meeting	24	4.3%	15	114.3%
2010 1st meeting	33	37.5%	12	-20%
2012 1st meeting	42	27.3%	12	0
Between 1992 & 2012	NA	Estimated annualised change **14.7%**	NA	Estimated annualised change **20%**

Table 4.1 Number of attendees at Clinical Heads meetings

(3.1A) Geographical Location

While the ageing population was a national issue, TTSH's location created easy access to the hospital and therefore, bore the brunt of this impact. One of the informants described thus,

"Over the next 10 years to the early 1990s, the pace of work actually grew very fast. So we became recognised as a general hospital. The A&E became more and more crowded and when CTE[13] was built it became pretty havoc…When the Paediatric left[14] (in 1997) – things became more and more difficult. By then we were fully general hospital and expected to take on more and more workload. With the CTE, we didn't ask for patients – they just came. At that point it became more difficult to preserve the teaching and research culture." (Dr E, personal communication, Jul 22, 2014). The second transport infrastructure that impacted on TTSH hugely was the Mass Rapid Transit[15] that started operations in 1987. One of the stations along the busy north-south line is located right at the doorstep of TTSH, creating access and convenience for patients and healthcare professionals alike.

From 1997 when a neighbouring hospital closed, TTSH became the only public hospital serving the central and northern areas of Singapore – where some of the oldest, densest and rapidly ageing housing estates are located. Relief did not come until 2010 when the Khoo Teck Puat Hospital opened its doors in the northern part of Singapore.

(3.1B) New Building

[13] The Central Expressway (CTE) is the major highway that links the city center of Singapore with the northern residential parts of the island. It is completed in 1991. TTSH is located next to one of its exits and thus receives a large volume of patients on a daily basis.
[14] TTSH ceased offering paediatric services when the Paediatric Department left TTSH to join the Kandang Kerbau Women's and Children's Hospital in 1997 as part of MOH's effort to reorganise and optimise care
[15] The Mass Rapid Transit (MRT) is the mass transport train system in Singapore

By the 1980s, it was obvious that TTSH needed a newer and bigger building. A new building was proposed in the early 1990s, completed and became operational in 1999 (TTSH, 1994b; Naidu, 2000; see Figure 4.1). The newer and more patient-friendly facilities on top of its geographical location led to fast growth rates as shown in Table 4.2 using selected indicative years (TTSH, 1994a; 1995a; 1998a; 1999; NHG, 2002; 2006; 2010).

	ED daily attendance		Clinic daily attendance		Day surgical procedures / day	
Year	Number	Estimated annualised % change	Number	Estimated annualised % change	Number	Estimated annualised % change
1994	250	NA	782	NA	20	NA
1995	252	0.8%	821	5%	22	10%
1998	279	3.6%	980	6.5%	45	34.8%
Between 1994 & 1998	NA	2.9%	NA	6.4%	NA	31.3%
1999*	294	5.4%	991	1.1%	47	4.4%
2001-02	342	8.2%	971	-1%	Data not available	NA
2005-06	384	2.5%	1313	7%	93	14%
2009-10	472	4.6%	1558	3.7%	130	8%
Between 1999 & 2010	NA	6.7%	NA	5.2%	NA	16.1%

Table 4.2 Daily Emergency Department and clinic attendances, and day surgical procedures

*TTSH started to operate from the new building from 24 April 1999 onwards

Comparing Tables 4.1 and 4.2, the growth in number of clinical and support departments (Table 4.1) is higher than growth in workload (Table 4.2), possibly indicating that the patients were more complex.

Teaching and learning spaces were designed and created in the new building, benefiting students and doctors e.g. library, lecture theatre, seminar and conference rooms, tutorial rooms in the wards etc. [CH 1994] A suite of research laboratories was originally planned but unfortunately did not come to fruition.

(3.1C) Rising Patient Expectations

Figure 4.3 shows the exponential growth in GDP from mid-1980s onwards. Not unexpectedly there was a corresponding rise in affluence and with it, a rise in patient expectations. During the Clinical Heads meeting on 28 February 1997, it was noted “in view of high incidence of complaints received in 1996, an ad hoc working group was appointed to look into establishing a system to promote better communication between doctors and

patients with family." [CH 1997] A study in 1998 provided external validation with this conclusion, "…service quality in Singapore hospitals is generally below patients' expectations" (Lim & Tang, 2000 p.296).

The Ministry of Health stepped in to give patients a national voice in 2004/2005, started the annual Patient Satisfaction Survey (Haseltine, 2013) and published the results on its website. TTSH was highlighted repeatedly for languishing near the bottom (Figure 4.5a).

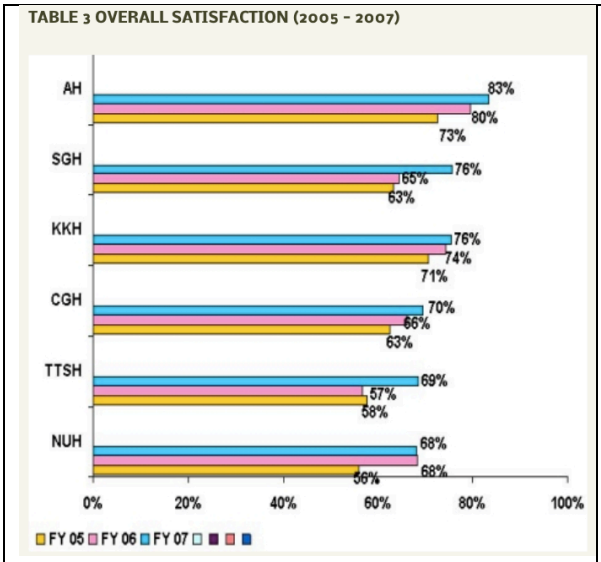

Figure 4.5a MOH Patient Satisfaction Survey 2005-2007: Overall Satisfaction with Hospitals. Retrieved on 7 Dec 2015 from https://www.moh.gov.sg/content/moh_web/home/pressRoom/pressRoomItemRelease/2008/patient_satisfaction_survey.html

TABLE 2 (2010) - OVERALL SATISFACTION AT A&E, SOC AND WARDS

Hospitals	Satisfaction Level (%)			
	Overall	A&E	SOC	WARDS
KTPH	82	73	81	87
TTSH	78	72	77	81
AH	77	71	79	77
NUH	76	68	78	76
CGH	74	76	73	75
KKH	74	74	70	79
SGH	67	57	65	73

Foot note: Ranking was in order of aggregating "excellent" and "good" ratings

Figure 4.5b MOH Satisfaction Survey 2010: Overall Satisfaction at A&E, SOC and Wards Retrieved on 7 Dec 2015 from https://www.moh.gov.sg/content/moh_web/home/pressRoom/pressRoomItemRelease/2011/Patient_Satisfaction_Survey_2010.html

Hence in addition to dealing with more patients, older patients, more complex patients, TTSH was under pressure to improve its performance on the Patient Satisfaction Survey. It took three years of determination and hard work for TTSH to move from second from the bottom (Figure 4.5a) to second from the top in 2010 (Figure 4.5b) while its workload continued to climb steadily.

(3.2) "Teaching is Embedded as Internal DNA"

As seen from the above, doctors in TTSH faced increase in workload, complexity and pressure to deliver better service to the patients in the 1990s and 2000s. Despite these challenges, the teaching culture survived – a testimony to its depth of entrenchment. Three

observations by informants are illustrative, two of which are gratifying and one is thought provoking,

"By that time we had 30 to 40 years of good culture building to withstand all the aftershocks that came with the onslaught of heavy workload – '50s, '60s, '70s, '80s." (Dr E, personal communication, Jul 22, 2014) and

"For TTSH, teaching is embedded as internal DNA, all the way through from students who pass by TTSH to staff who go on to work here, it is very much one of the key distinguishing factor of a TTSH-ian." (Dr O, personal communication, Apr 29, 2015) and

"Five to ten years ago, the powerful education agenda was so prevalent that leadership was intervening already, leadership was telling education not to take so many good people, otherwise the other parts of the hospital will 'collapse'." (Dr L, personal communication, Apr 24, 2015).

(3.2A) Learning from the Talk and the Work

If teaching is in TTSH's DNA, what is its manifestation? Insight from the youngest informant, whose status as a learner/trainee in specialist education was completed just ten months before the interview gave a glimpse of this manifestation,

"What defines our culture: While a large component of what we do is service, it seems invariable that when we have a service command e.g. do a full blood count[16] for a patient, it is often followed by an explanation or justification on why we are doing it. I felt that is one of the things that define a teaching culture. It is the need to explain or justify our reasons, and the purpose is not to protect oneself but to educate the person who is receiving the order. Over the years, this is quite entrenched. Having worked in other institutions where service seems to be the core (only) thing… That is a small but powerful day-to-day example of why I think we have a teaching culture. When it extends to more complicated things like surgery, procedures, the way we have been taught to supervise our juniors, it has always been with the educational bend" (Dr D, personal communication, Apr 30, 2015). From a senior informant who was head of a big department, the manifestation of teaching culture took the form of senior doctors who shared their expertise, guided and entrusted younger doctors with responsibilities,

[16] Full blood count is a blood test

"TTSH's early reputation as a place to work very hard, to have very good learning experience, to have senior clinicians who will impart their knowledge and skills in the work place, for youngsters to be taking on responsibilities" (Dr W, personal communication, Aug 12, 2014). The collective view of the manifestation of teaching culture was illustrated by minutes of Clinical Heads meeting on 19 May 2006 in response to a narrow definition of "training" in a MOH guideline,

"Training of doctors is more than classroom teaching. There is also apprenticeship and elements of discussion and teaching in every case. Teaching and training can be conducted during ward rounds / SOCs[17] / OT[18] in which management plans / investigations are discussed. There should therefore be a category of clinical teaching, which includes surgical skills teaching, bedside teaching, training in OT etc.… some of the informal training activities at ward rounds / clinics / procedures could be "formalized" into "teaching" ward rounds or procedure teaching sessions. These ward rounds or sessions often entail interaction with seniors and there is often direct supervision involved." [CH 2006a]

(3.2B) Reducing Factors that Led to Dissatisfaction

In motivational theory hygiene factors were those that when managed badly would lead to job dissatisfaction but when managed well, did not necessarily lead to satisfaction (Herzberg, 2003). These included policy and administration, work conditions, relationship with supervisors, peers and subordinates etc. and were featured regularly during Clinical Heads meetings:

(i) Physical and digital/electronic amenities affecting students' learning and young doctors' work conditions was a recurring theme during Clinical Heads meetings e.g. night duty/on-call rooms, lockers, access card to enter patient areas, access to patient electronic records, library and learning resources etc. [CH 1992, 1994, 2009a, 2010d, 2012c]

(ii) Some tasks are "low value" to junior doctors' learning and these are systematically shifted to be performed by another group of healthcare workers e.g. completing/labelling blood or radiographic order forms, giving intravenous medications

[17] SOCs refer to Specialist Outpatient Clinics i.e. the clinic sessions in TTSH
[18] OT refers the surgical Operating Theatre

to be done by nurses; drawing blood, performing electrocardiogram etc. to be done by technicians [CH 1996a&b, 1998a, 2009c]

(iii) Work hours and training hours became a focus in the late 2000s e.g. capping the number of night calls that junior doctors perform monthly and ensuring their learning during these calls, keeping junior doctors' work hours to a maximum of 80 per week, ensuring that these doctors were able to meet the training hours set by MOH and submitting their records etc. [CH 2006a, 2008a&b, 2009c]

(iv) Relationship with nurses e.g. junior doctors voiced their dissatisfaction that nurses' resuscitation skills needed improvement and this was discussed at Clinical Heads meeting [CH 1998a]

(v) Feedback from junior doctors started to be collated from mid-1990s that would influence decisions at Clinical Heads meetings [CH 1998a]. Junior doctors committees were later formalised to give them an official voice on matters relating to their education and welfare [CH 2000b].

(vi) A fair appraisal system for junior doctors was discussed repeatedly at Clinical Heads meetings in response to some MOH's requirements that were deemed to be unfair to these appraisees [CH 2010c, 2011b].

(3.2C) Education as Enabler for Better Care

When an area of care was identified to require improvement, education and training would be activated as a key means to change and bring about improvement. With rising patient expectations, communication with patient and family members became an area for improvement. Initially it was an internal drive in response to communication as a major cause of complaints. Decisions to start communication training for doctors, especially junior doctors who were at the frontline, and change workflow were made during Clinical Heads meetings [CH 1997, 1998b, 2001]. A comment by an informant illustrated the situation in the 1990s,

"Most of us were not brought up in those (communication) skills or taught to us. We kind of learn on the job. If I look at my own experience, I was not taught exactly how to broach subjects especially sensitive ones. Sometimes the patient may have felt aggrieved or felt hurt without me knowing." (Dr E, personal communication, Jul 22, 2014). By the late

2000s TTSH's suboptimal performance at the annual MOH Patient Satisfaction Survey added to the pressure to improve communication. A change in training strategy was noted during Clinical Heads meetings: basic communication skills training continued to be mandated for junior doctors but for senior doctors, training was (i) to train them to become future communication trainers and (ii) for high stake difficult communication after a patient had suffered an adverse outcome [CH 2005c, 2007b, 2008a, 2010a].

Another area for improvement was junior doctors' technical competence in performing invasive procedures on patients such that Clinical Heads intervened by introducing training programmes [CH 1998b, 2005a, 2009c].

(3.2D) Educating New Joiners

Ensuring that doctors who were new joiners were adequately orientated and trained to take on responsibilities (e.g. company orientation, resuscitation drill with nurses, training for use of IT systems, cultural and medico-legal training for international medical graduates etc.) became a topic for repeated discussion during Clinical Heads meetings from mid 2000s onwards [CH 2005b, 2007d, 2011g, 2012a]. Discussions during these meetings were sometimes intense because such programmes required significant resources e.g. senior doctors' time to provide training, simulation laboratory, which was a huge capital investment.

Orientation and training of new joiners were functional compared to the next item, which was aspirational.

(3.2E) Learner Centredness

Beyond ensuring that they are prepared for work and learning in TTSH, the desire to add value to students' and young doctors' learning found expression on many fronts e.g. guidance on career/choice of speciality, assignment of clinical and education supervisors to guide learners, video production of physical examination techniques to teach students, ensuring learning even during night calls, $1000 as annual training fund for every junior doctor, setting up an education office to provide administrative help and support for learners and teachers/trainers etc. [CH 1998a, 2000b, 2001, 2005a, 2007d, 2008a, 2011b, 2011e]. An informant summarised in this manner,

"During my junior postings it was apparent that people were concerned about my development as a junior, that I was learning properly and doing the right thing. That is an

important concept, that it is not just an expedient thing (i.e. get the patient discharged) but that you are thinking about what is the right thing to do for this patient and getting me involved even as a junior member, to think about such processes as well." (Dr O, personal communication, Apr 29, 2015).

(3.3) Strengthening the Pipeline

Having experienced rapid growth rates in the 1980s, TTSH started the 1990s with a concerted effort to attract and recruit doctors. This statement from a Clinical Heads meeting in 2002 represented the collective view, "junior doctors join institutions which provide good career path and good teaching program" [CH 2002], a view echoed by an informant,

"From the management side…what I mentioned to him (Dr Lim Suet Wun, CEO, 2002-2011) then was there would always be competition for manpower, and for doctors to join you. And one of the most important things that actually influence the decision of where they choose, and whom they choose to work with, will always be the experience and how they were treated when they were students" (Dr H, personal communication, Jun 26, 2014).

The strategy was to nurture them from young by identifying medical students who would fit in, training junior doctors well and reaching out deliberately to those who were almost completing their traineeship [CH 1993, 1994, 1995]. In 2007, extra resources were committed to start a programme to identify and train a core group of young doctors who upon completion of specialist training would be guaranteed jobs as physicians in TTSH – a proposal that Clinical Heads agreed to support [CH 2007e&f]. Staff grade doctors who were not specialists were also needed in order to free the specialists from the mundane aspects of doctoring. Again Clinical Heads agreed to commit extra resources to identify, train and support such doctors [CH 2002, 2007a].

When MOH announced that the specialist training system would undergo a radical change in 2010, the competition for junior doctors intensified. Clinical Heads were urged repeatedly to encourage their doctors to identify promising students, teach students well, provide them with good learning experience, keep in touch with them and support them as young doctors [CH 2010c, 2011a]. Hence by 2009 when TTSH agreed to be the clinical partner for the new medical school, there was already a tried-and-tested system of

identifying and nurturing the next generation of doctors who would join TTSH, share its vision, uphold its values and perpetuate its culture.

(3.4) The Microculture of Research

"Microculture evolve in small groups that share common tasks and histories…whose task requires mutual cooperation because of a high degree interdependency." (Schein, 2010 p.67) Unlike education that is a dominant culture, research is a microculture in TTSH.

(3.4A) TB Research

The TB research in 1950s and 1960s was supported by the British Medical Research Council (Chew, 1998) and recognised internationally. Those were the days when TTSH flew the research flag high. When the quantity of TB research slowed down with control of the disease, research – cutting edge and high impact as seen in TB research, started to drift out of TTSH's already busy agenda. No one could possibly reject or regret TTSH's transformation in the mid-1960s from TB hospital to general hospital. However the shift away from TB led inadvertently to TTSH's loss of its edge in world-class research. In its heyday as TB hospital, 4000 to 5000 new cases of TB were seen at TTSH annually, such that by 1962, there were 475,000 TB patients – old and new (TTSH, 1994b). This was a remarkable figure when Singapore's population was only 1.75 million in 1962 (World Bank, 2016) i.e. 27% or 1 in 4 persons in Singapore had TB. Such high caseload provided rich substrate for cutting edge world-class research on TB.

(3.4B) An Unfulfilled Promise

The informants reported that research was done in the 1970s and 1980s e.g. studies on opium lungs, and chronic obstructive lung diseases in smokers (Dr E, personal communication, Jul 22, 2014) but it never became entrenched the way education did.

Two of the Chairmen of Medical Board, Drs E and S, and the CEO of those years were supportive of research in substantial ways in the early 1990s. Announcements about availability and types of external grants for research were made and Clinical Heads were urged repeatedly to encourage their doctors to avail themselves to these funding sources [CH 1993, 1994]. In 1996, the Clinical Research Unit comprising director, secretariat, research scientist etc. was established to inspire a research culture in TTSH [CH 1996a].

When planning the new building in the early 1990s, one complete floor was

promised to research, as described by an informant,

"*Dr S had very ambitious plans. Level 5 was supposed to be the research lab for TTSH. But the plans were hijacked and one half of level 5 became offices and the other half became the labs of NNI.*[19] *It was a big disappointment. Laboratory research was postponed for another 10 to 15 years because we had no lab"* (Dr A, personal communication, Apr 27, 2015). Unlike teaching activities that could take place anywhere: at the patient's bedside, in the clinics and in a meeting room, research needed dedicated space to house equipment, for scientific work to take place and to conduct trials – a critical resource that did not materialise.

(3.4C) A Decade of Decline

The final blow came when Dr LSW took over as CEO in 2002, disbanded the Clinical Research Unit and thus began a decade of decline in research, such that an informant said,

"We have a very weak research culture. We have no research literacy… We don't have a research culture that permeates the whole organisation." (Dr A, personal communication, Apr 27, 2015)

The one event that had the potential to change research in TTSH was the SARS (Severe Acute Respiratory Syndrome) outbreak in 2003 (see Figure 4.1). MOH concentrated almost all SARS patients in TTSH and TTSH did not have to take care of non-SARS patients for ten weeks (Tham, 2004). Within the hospital, all resources were focused on managing, limiting and controlling SARS, and ensuring the health and safety of its entire staff. The "doing" orientation helped the hospital to pull through: "…in 2003, this same spirit of courage, camaraderie and sacrifice was replicated when Singapore was struck by the severe acute respiratory syndrome (SARS) virus without warning with TTSH bearing the brunt." (Chew, 2008 p.969) TTSH doctors published hundreds of abstracts and journal articles in 2003 and 2004 on the outbreak. Unfortunately because of an absence of the infrastructure and support e.g. there was no statistician, no research associate, no clinical research unit etc., to consolidate the data and gather the doctors to move research to the

[19] National Neuroscience Institute (NNI) was established in 1999 and shares part of the campus in TTSH, http://www.nni.com.sg/Pages/Home.aspx

next level, all efforts except those in the Infectious Diseases Department ceased quickly when the workload started to climb again.

In 2005 when Dr A was appointed to lead the research portfolio in TTSH, he described the situation thus,

"Research was barely alive, had barely any funding from MOH and barely any funding from hospital" (Dr A, personal communication, Apr 27, 2015). Review of twenty years of minutes of Clinical Heads meetings revealed a finding that supported this view: many meetings would go by without any discussion on research at the hospital level. My estimation was that during those two decades for every item on research that was presented, there would have been eight items on education and teaching and twice that number on clinical service/care.

(3.4D) "Who Do We Learn From?"

Research in TTSH ended the 2000s with a window of opportunity precipitated ironically by TTSH's rich teaching culture: NTU and the new medical school approached TTSH to teach medical students, and as a secondary consideration, to be one of its research collaborators. This invitation to a strategic alliance provided TTSH leaders some food for thought as described by an informant,

"But the next step is who do we learn from? If there is nobody, then we have to start learning on our own. The research part becomes important, the contextualisation, localisation of our own medical problems becomes important. For example doing breast cancer clinical trial overseas may say this is the regime – this is the dose, this is the duration but when applied to the locals, it may not be the same. Just importing and copying may not be the right way to go. We have reached the stage when we have money to do research – nation wide research funding. We are on a different phase of growth. This means that the previous foundational blocks must still be in place before we can reach higher and higher." (Dr E, personal communication, Jul 22, 2014).

(4) Strategic Alliance

When NTU's proposal for TTSH to be its clinical and training partner for the new medical school (Imperial, 2010; NTU, 2010) was presented to the Medical Board and Clinical

Heads in mid 2009 (see Figure 4.1), it was unanimous that TTSH should agree to the partnership [CH 2009d]. TTSH viewed this proposal as a strategic alliance at two levels: (i) for itself and its parent the National Healthcare Group (NHG, 2012), and (ii) for education and research as well. As explained in the Introduction, NHG and LKCMedicine opted for a relationship of inter-dependence and not full integration. Three years of hard work and negotiations followed that culminated finally in an affiliation agreement on 14 August 2013 (NTU, 2013; NHG, 2014).

The results presented in this section concern the most recent events. In addition to minutes of Clinical Heads meetings, information from informants, relevant secondary sources, I will draw on my observations during Medical Board meetings, Clinical Heads meetings, Special Quarterly meetings, CEO's townhall meetings, award ceremonies etc. to complete this report.

(4.1) The Education Mandate: Starting with the End in Mind

NTU had no experience with any medical school and the Ministry of Education (MOE) had announced that there would be an international partner for the new medical school (Coughlan, 2010; Imperial, 2010; MOE, 2010) – issues that would impact on TTSH majorly. To prepare for the changes ahead, TTSH leaders and educators proactively set aside two days in early 2009 to brainstorm and articulate its vision for the strategic alliance with NTU. An informant who participated in that envisioning session, said on reflection,

"Today Yong Loo Lin prizes ethical leadership, professionalism, holistic care, primary care is a reflection of the pressures that the TTSH group played in developing its own vision of an alternative education viewpoint, to so successfully sold it to the authorities that on one hand it succeeded in a new medical school, on the other hand it established a new paradigm for what constitute an appropriate product of education for Singapore medical undergraduate education. Words like "stem cells", "equi-potency" – they were really very much our ideas though you can argue that those ideas were not unique – they just needed people who want to deviate from the status quo, to prioritise them" (Dr W, personal communication, Aug 12, 2014).

One key aspect of the vision was defining the graduate of the new medical school: a product fit for purpose. With its vision distilled, TTSH worked with NTU and other

stakeholders to ensure that they understood NHG-TTSH's vision and the terms of engagement.

(4.1A) Preparing the Clinical Educators and Teachers

Concurrently as TTSH prepared for the new alliance with NTU, MOH revamped the national postgraduate training system that was subsequently launched in 2010 (MOHH, 2015; see Figure 4.1). Thus TTSH started the 2010s faced with massive changes on two fronts: undergraduate and postgraduate medical education. Believing that the quality of the clinical educators and teachers was the single most important factor in ensuring success on both fronts (Barber et al, 2012), TTSH and its parent organisation the National Healthcare Group (NHG) invested heavily in preparing its people well and recognising their efforts fairly.

(i) Enhancing Knowledge and Skills in Teaching and Education

An informant summarised the state of teaching in late 2000s thus,

"I think we have (a teaching culture). It was informal before in the past, without much structure, more out of interest from the various individual doctors" (Dr H, personal communication, Jun 26, 2014). To accomplish the tasks at hand, the individual doctors' interest must be enhanced, directed and supported with structures (Cooke et al, 2010). To enhance the knowledge and skills in education and teaching for key doctors, NHG worked with a renowned American institution to design and implement a training programme that has since been completed by scores of lead doctor-educators [CH 2009a&b] (Ong, 2012; Partners Healthcare International, 2015).

(ii) Nurturing Education Leaders

In addition to knowledge and skills to teach, education leadership was also targeted for development (Cooke et al, 2010). Identifying the candidates, providing mentors and setting aside funding to support these doctors who wanted to pursue a masters degree in medical education or health profession education started in 2011 (NHG Senior Management Meeting minutes, 2011, unpublished data). At the time of writing, all these doctors have completed their masters degree and taken up leadership positions in either the new medical school or in postgraduate medical education. Two more cohorts of doctors have since enrolled in the masters programmes.

(iii) Education is "Mandatory"

To ensure that the doctors teach and lead well, the appraisal and remuneration systems were re-aligned to support clinical teachers and educators fairly. The most impactful was the decision to implement "a mandatory 10% 'Education' component for all doctors" in the revised annual appraisal system (Minutes of the [2012] 11th Medical Board Meeting Held on 9 November 2012, Friday, unpublished data; see Figure 4.1). An informant articulated the idea undergirding this far-reaching decision,

"Teaching is not something you choose. Teaching is something you are responsible for" (Dr C, personal communication, Jul 7, 2014). A new career track was also created - Clinician Educators, for the doctors who would devote substantial amount of time to teaching and education [CH 2011f] (NHG Senior Management Meeting minutes, 2011, unpublished data; Ong, 2012). Two informants summarised these comprehensive moves thus,

"To me it (education) is like becoming a career unto itself. In the past, we are kind of doing it as extra, good to do because you want to get promoted, but now it is like a career. There is structure to even the faculty who is taking on the role of training the residents, the undergraduates. That is a positive step because it is more scientifically based. There are good assessments both for students and for faculty so that the positive learning cycle can be enhanced. Doing more of the same makes you more and more expert, more efficient and more effective." (Dr E, personal communication, Jul 22, 2014) and

"We also set up the medical educator track and the purpose of that is actually to consider it as official work done and there is an official appointment for that. Subsequently after that then under appraisal, we can measure that it becomes part of your appraisal system." (Dr H, personal communication, Jun 26, 2014)

(4.1B) Engaging External Stakeholders

TTSH was cognisant that support from other external stakeholders e.g. the international partner (i.e. Imperial College London), MOH, the other medical schools and other hospitals was critical. One of the informants provided this insight,

"When one looks at a particular agenda, I think our ability to manage that agenda and the collateral issues that arise is very important. The issue is not just the existence of LKC [Lee Kong Chian School of Medicine] out of the blue and our close association with it. It is also the ability to handle a different university – NTU, and its leadership and its own

objectives, the ability to manage a foreign partner, which has its challenges. And then the need to manage other incumbent expectations of your re-alignment… to manage the politics of a new partnership and the relationships with your old partners" (Dr W, personal communication, Aug 12, 2014).

(i) Imperial College London

Together with representatives from Ministries of Education and Health, and NTU, TTSH leaders visited Imperial College London in January 2010. Dr H, who was one of the delegates and chair of medical board reported the visit to Clinical Heads and commented that Imperial was welcoming [CH 2010a]. One month later, the Vice-Chancellor of Imperial College London and the Dean of its School of Medicine visited Singapore [CH 2010a]. From 2010 onwards, regular visits by various teams from Imperial College London were made to meet their counterparts in TTSH and NHG as momentum built towards the admission of the first cohort of students in 2013.

(ii) Ministry of Health (MOH)

The setting up of the new medical school was a national matter worthy of mention in the live telecast of the 2010 National Day Speech by Prime Minister Lee Hsien Loong (Lee, 2010). With that background, TTSH's engagement with MOH was for three purposes:

- That MOH would endorse TTSH's vision of the product of the new medical school, which was a departure from the incumbent medical schools,
- For MOH to facilitate discussions among three medical schools and six hospitals about coordinating student placements and training [CH 2011g], and
- Finally, to secure funding for doctor-manpower to teach, for curricular work and education leadership [CH 2011g].

The matter of funding for clinical teaching was gaining urgency because it was projected that 20% of doctor-manpower would be needed to deliver teaching and lead education [CH 2009f]. TTSH met MOH officials on several occasions as described by an informant,

"…the government's belated recognition of the informal but critical role healthcare in medical education, and then providing funding to make that happen. A lot of people have

lobbied very hard – Tock Han[20], the then DMS[21] – and to get a piece of the education money from government to Ministry of Health rather then just Ministry of Education" (Dr W, personal communication, Aug 12, 2014). These efforts contributed to a new stream of funding from MOH that began in 2013 (MOH Training Circular - Pre Employment Clinical Training, MH 40: 11/82-v8, 2013 unpublished data).

(iii) Other Medical Schools and Hospitals

TTSH's CEO and then-CMB Dr H with the educator team visited the other two medical schools and all the other hospitals in 2009 and 2010. Except for one medical school and one hospital, the rest were cordial and expressed support. Several stakeholders had questioned this move by TTSH and implied that such visits by the new medical school team would have sufficed. A comment from an informant illuminated the sense of stewardship that was integral to TTSH's vision for the medical school,

"I think what we have managed to do in the last three to four years has been to be the most stable partner to the whole consortium. In other words as stated before in previous meetings with the then-dean, and senior vice dean, TTSH and NHG will take the responsibility of delivering the product that we envisage when we first thought about this medical school however much turmoil that is within our partners. Only by believing that you ultimately can and have the resources to deliver the product, can you see through all these be it shenanigans, be it politics, be it academic jealousies, be it research follies that will reach through this sort of undertaking. Our steady stewardship of ensuring that medical students will ultimately come through, our willingness to throw resources into the mix to make it happen – those are the things that people who are in the know will look back and feel that, we have done our part more than we could because we could see that our part was pivotal" (Dr W, personal communication, Aug 12, 2014).

(4.1C) Getting Buy-In Internally

The effort that TTSH invested to obtain buy-in internally provided an interesting contrast to the Geisinger merger with Hershey Medical Center that conducted their negotiations in secrecy (Mallon, 2003).

(i) Clinical Heads

[20] Dr Lim Tock Han was Assistant CEO (Education and Research), National Healthcare Group at that time.
[21] Professor Satku was the DMS (Director of Medical Services) in post at that time.

From mid 2009 onwards, regular progress reports were presented at Clinical Heads meetings on all aspects of TTSH's developing relationship with NTU, the new medical school and Imperial College London. Updates included timeline, curricular and pedagogical outline, teaching knowledge and skills required of doctors, eligibility for adjunct faculty appointments, academic titles, allocation of protected time to teach, remuneration and salary, governance, organisational structure and relationship with TTSH etc. [CH 2009a&d, 2010a&b, 2011b,e&f, 2012d]

During the meetings on 21 February 2011 and 27 May 2011, the senior vice dean of the medical school was invited to meet the Clinical Heads to provide updates. These included new buildings and campus development, faculty appointment process and system, admission criteria, curricular and pedagogical principles, examination and assessment system, opportunities for joint training and lectures, and research strategies [CH 2011b&e].

The Clinical Heads and the doctors welcomed the strategic alliance cautiously and agreed with the leaders' vision of the end product. Except for one sore point, Clinical Heads' cooperation and support for most other matters e.g. pedagogy, selection criteria for faculty appointment, governance structure etc., were assured and came forth. The sore point was recruiting and nurturing enough doctors to meet the teaching and education needs. During the 22 May 2009 meeting when the new medical school was first presented, several heads spoke forcefully about their anxiety about the demand for doctor-manpower to meet a myriad of needs. At the conclusion of the heated discussion, "CMB advised that the first priority would be to meet current service needs, followed by the teaching needs for the new medical school starting off in 2012, and the residency[22] program which would be shared and phased in over several years, and finally helping to recruit for AH[23] team 2" [CH 2009d]. Knowing that there was on-going dialogue with MOH about funding Clinical Heads and TTSH leaders alike were less worried about funding, but remained anxious about the manpower situation, expressed by an informant,

"The downside is to find enough people who are passionate about doing these things, having the resources to invest in them, not so much about money but the time to let

[22] The residency programme refers to the postgraduate medical education system that was launched in 2010

[23] AH refers to Alexandra Hospital, the forerunner of Khoo Teck Puat Hospital. When a new hospital is being built, Ministry of Health assigns an established hospital to recruit and train a core group of staff for the new hospital. TTSH was assigned to do so for AH-Khoo Teck Puat Hospital.

them grow and do their thing, to attend overseas conferences and courses, to improve themselves so that they will become better faculty. That means the impact on the rest of the hospital is that someone's got to do their job because these people are now excused, we need to find people to deliver the care. Without patients, the teaching will come to a halt. Patients must continue to want to come to TTSH. The clinical load must not be so overwhelming – there must be enough people to do the job" (Dr E, personal communication, Jul 22, 2014).

(ii) Ground Level Doctors

Buy-in needed to come from ground level doctors and other staff as well because these were the people who would teach and interact with the students on a daily basis. To disseminate information about the new medical school, NHG started to publish fortnightly electronic newsletters from 2012 onwards. These were visually appealing and had bite-size information. At regular intervals, hard copies were printed as posters for display in the lifts and other areas with heavy staff traffic. When the new medical school started to publish its own e-newsletters, these found their way into the inboxes of TTSH staff too.

In addition to dissemination of information, facilitating doctors to sign up for teaching courses and recognising teaching effort and excellence via awards were considered strategic too, as described by an informant,

"I think we need to emphasise more actively the need for teaching. In the past we tend to leave it to nature – you like teaching, you go and teach. We don't have active encouragement for people to teach. We must think of ways and means to encourage, not just recognition in terms of remuneration but give them other kind of recognition" (Dr C, personal communication, Jul 7, 2014).

The NHG education office stepped in to provide administrative assistance for doctors to attend teaching courses and provided Heads with tracking of attendance and learning gap analysis. In addition to the TTSH Best Teacher Awards that gave away almost 30 awards, the NHG Teaching Excellence Awards Ceremony of 2013 was grand with 110 awards, a quarter of which were given to doctors. The atmosphere was fun and festive and crowds of students surrounded the award winners requesting for photographs. The YLLSoM Teaching Award 2013 took place in a more sombre mood and 40 awards were given away.

Another engagement exercise was the senior vice dean's and TTSH education team's visits to the departments in 2011 and 2012 to update the doctors. While some of the doctors shared the Clinical Heads' anxiety, most were cautiously optimistic, welcomed the chance to contribute and do things differently from what the incumbent medical school had asked of them.

It was during these meetings that the sore point for ground level doctors revealed itself to be different from that of the Heads. The ground level doctors were anxious about eligibility for adjunct appointment and assignment of academic titles. Their experience of the NUS system of appointment and titling had set certain expectations that they hoped NTU would match. In the minds of these doctors, such appointments and titles were recognition for work done, and many were oblivious to the career and promotion implications in the university tenure and promotion system because they did not apply to the doctors who were employed by the hospital. The initial rumble [CH 2012d] escalated to impassioned appeals during Special Quarterly meetings in 2013 and 2014 from Heads on behalf of their doctors. The doctors felt that NTU had been tardy and unappreciative of the completed and on-going work. At the time of writing, this was still unresolved and had the potential to sour the relationship between school and hospital.

(iii) A Team for Each School

As the scale of the new medical school project became clear, CEO and CMB Dr H decided to create a new portfolio and team to lead the project in 2010: Assistant Chairman Medical Board (Education) [CH 2010c]. I was the inaugural appointee, a post that I still hold at the time of writing. The educator team that had been working with YLLSoM was given extra resources and a mandate to continue to engage YLLSoM. By separating the two teams TTSH sent different messages. To YLLSoM, TTSH assured them of no change in the high quality learning experience for their students and no reduction in the number of clinical placements. However, TTSH would be the driver of the terms of engagement [CH 2011f&g]. To LKCMedicine, TTSH's dedicated team that had honed its skills with previous YLLSoM experience signalled commitment and talent suited to undertake the developmental work.

To the Heads and doctors, the two teams provided clarity for administrative procedures but created anxiety and questions about exclusivity. This was discussed at

Clinical Heads meeting [CH 2011f] and also during my informal interviews. The doctors were reassured repeatedly that they could choose to teach students from both schools or confine themselves to just one school [CH 2011f].

Imperial College London was also anxious about exclusivity, preferring an arrangement that TTSH would teach only LKCMedicine students, similar to their arrangement with the Imperial College Healthcare Trust and affiliated hospitals. It took several meetings for TTSH to state clearly that it would not agree to an exclusive arrangement with LKCMedicine.

(4.2) The Research Mandate: Revival

The invitation from NTU in 2009 to be a research collaborator brought promises to TTSH. However, an informant summarised the dismal research situation at that time,

"Barriers are not people. Barriers are funding, a culture that is more service than research, inertia or lethargy of doctors towards research – it is not a person blocking research. It is a whole culture that needs to change." (Dr A, personal communication, Apr 27, 2015) The NTU invitation did not change anything until Dr W was promoted to Chairman, Medical Board in 2011 that a new chapter for research began finally. One of the clinician researchers said this of Dr W,

"When Dr H became CEO and Dr W became CMB, things improved. Dr H was more facilitative and does not look at the bottom line so strictly. Dr W is keen to build the capabilities of doctors and research is on his agenda. He was very supportive." (Dr A, personal communication, Apr 27, 2015) This comment by an informant illustrated Dr H's facilitative leadership,

"(For) people who want to do research, they think that the path is actually easier for them in the hospitals that have done a lot of research. That is why as a group, we actually did put aside a fair amount of money to try to break that cycle because we need to disprove and say that, that may be true in the past but not true today" (Dr H, personal communication, Jun 26, 2014). Under Dr W's leadership, all aspects that supported research progressed at a rate that was unprecedented since the TB years. I will discuss Dr W's role as boundary worker in the Discussion chapter. The decisions and actions by Dr W to improve the

research environment (DeHaven, Wilson & O'Connor-Kettlestrings, 1998) are described below.

(4.2A) A Broad Definition

At the 21 February 2011 Clinical Heads meeting - the second that he chaired as CMB, Dr W articulated TTSH's aspiration for the doctor-group to lead the hospital in its renewed effort in research and innovation [CH 2011b]. This led to the emergence of the Clinical Research and Innovation Office (CRIO) a few months later [CH 2011c] – an amalgamation of several smaller units into a super-structure - to support three streams (1) clinical trials (e.g. device and drug trials), (2) clinical research and (3) clinical innovation. The CRIO signalled two things:

(a) A broader definition was needed that encompassed the scholarship of discovery i.e. traditional biomedical research, scholarship of integration and the scholarship of application (Boyer, 1990).

(b) While a broad definition was in keeping with a newer understanding, biomedical research still commanded a premium in the medical world and hence the director of CRIO was a doctor researcher – Dr A.

(4.2B) A Renewed Team

CRIO brought together some skills that were synergistic e.g. statistics, grantsmanship to ensure better coordination and support for the researchers. A new team of doctors was appointed for each of the streams to bring fresh ideas and perspective. The CRIO actively sought alignment with the NHG research office in order to extend its reach and maximise its resources. After 18 months of negotiation and hard work, the Research Steering Committee was announced, with the aim "to generate more active communication, and to involve more doctors in research" [CH 2012e].

(4.2C) Department KPI

For the first time in TTSH's recent history, research key performance indicators (KPI) were openly articulated during Clinical Heads meeting – Dr W requested that every department should have two research KPIs: (1) to bid for a small grant and (2) to start a biomedical project with NTU or another institution [CH 2011c]. To facilitate this, the "nuts and bolts" were explained over several meetings: ethics review board and application [CH

2011d], support from CRIO [CH 2011d], intellectual property and patents [CH 2011d&e], Master of Clinical Investigation programme [CH 2011d], opportunities and sponsorship for researchers to showcase their work [CH 2012a], availability of other grants [CH 2012d] etc.

(4.2D) Nurturing Research Talent

While 10% of every doctor's time was mandated for teaching-educating students and young doctors, Dr W and the research leaders did not adopt such a strategy for research. Instead research talent was hand-picked and nurtured individually,

"Research is very competitive. If we leave the best people by chance and do not give them the additional boost, it is very difficult for them to compete at the national level, to get even the first grant… we need to selectively provide the researchers with additional resources and incentivise the institution to focus on these areas e.g. emerging areas" (Dr L, personal communication, Apr 24, 2015). To nurture the talent, financial support for completing the Master of Clinical Investigation programme was provided. The NHG Clinician Scientist Career Scheme was launched in early 2012 to provide career security for the difficult first years (Lee, 2012a). The following statement provides further context for comparison,

"In Singapore General Hospital and National University Health System 10-15% are "serious" researchers. We are still a long way off. At my last review of consultant manpower, we have 380 consultants, and only 5 (research) track leaders" (Dr L, personal communication, Apr 24, 2015). When compared with teaching, the contrast is even starker: 10% of 380 TTSH consultants' work is set aside for teaching i.e. 38 full time equivalents compared to 5 for research.

(4.2E) Raising Research Literacy

In addition to nurturing research talent, efforts to raise awareness of the grants and opportunities and to improve research literacy were stepped up. This could be inferred from my observation of the email traffic related to research: between August 2013 and July 2014, only two months had weekly announcements; all other months had announcements every day or every other day. These were the types of announcements:

- Grant calls: 44% of which two-thirds were grants from external agencies,
- Research training: 44% of which 80% were organised by TTSH or NHG,

- General announcements: 9% e.g. lecture invitations, changes in application procedures and
- Research career opportunities: 3%.

Unfortunately data related to attendance at research training and grant application are not available for this study. The email traffic related to teaching-education paled in comparison: one announcement in 4 weeks with an equal distribution between grant calls and training.

(4.2F) Visibility

The successful researchers and their work were showcased at NHG's biggest annual scientific event – the Singapore Health and Biomedical Congress (SHBC). For SHBC 2012, 2013, 2014 and 2015, the Minister for Health was the guest of honour and handed the awards to the top researchers. SHBC was also an occasion to launch strategic initiatives:

- The inaugural NHG-NTU Scientific Biomedical Research Symposium was launched at SHBC 2013 (NTU, 2012),
- A S$100 million new institute for rehabilitative care research – a joint effort by NHG and NTU - was announced at SHBC 2014 (Lai, 2014) and
- The signing of a Memorandum of Understanding between NHG and NTU to study disease risk factors unique to Asians in order to predict and prevent the disease, took place at SHBC 2015 (Hassan, 2015).

The visibility, the fanfare and national attention were probably motivational for the researchers (DeHaven et al, 1998).

The reflection of a clinician researcher provides an apt summary for this section,

"We should do research that is clinically applicable and collaborate when needed…they cannot ignore us because we are sizable; we are big enough. Just like education, we are big enough to 'take' a medical school" (Dr L, personal communication, Apr 24, 2015). Hence at the time of writing, there are signs that research in TTSH is being revived and stands a chance to be an equal partner with NTU-LKCMedicine in the near future.

(5) Threats

In Singapore that has only 50 years of nationhood, TTSH at 171 years old is a mature organisation, and "if it has developed a strong unifying culture, that culture now defines even what is thought of as 'leadership', what is heroic and sinful behavior, how authority and power are allocated and managed, and what the rules of intimacy are." (Schein, 2010 p.376) A poignant comment from an informant provided food for thought about the dominance of the teaching culture in TTSH,

"Five to ten years ago everyone would say that, 'If I want to succeed in TTSH I must be an educator' - that was how powerful the education agenda has been in TTSH, for people to see it as the only route to fulfilment or achievement in TTSH. Now I think there are more departments which support research, not just in words but also in resources like clinic, (conference) sponsorships – that has changed over the last five years" (Dr L, personal communication, Apr 24, 2015). Majority of the informants identified two threats to TTSH's teaching culture: clinical workload and complacency.

(5.1) Workload

The first threat is a key factor that built the teaching culture: the abundance of patients and teaching material. The abundance of patients translated into heavy workload that doctors shouldered and was recognised as a threat to students' and young doctors' learning and doctors' teaching since the early 2000s [CH 2002, 2006b, 2008b, 2009d]. Concerns expressed by two informants were illuminating,

"My concern is…I can see the volume of work is increasing and sometimes doctors may have no time to teach" (Dr C, personal communication, Jul 7, 2014) and

"The risk to education is the clinical load" (Dr H, personal communication, Jun 26, 2014). It was in 2009 when the invitation to partner LKCMedicine coupled with the implementation of the new postgraduate training system that the doctor-manpower needed to teach and educate was calculated, quantified and assigned a dollar-value [CH 2009f] leading to the decision to mandate 10% of work for teaching. The sore point of recruiting and nurturing enough doctors to meet the teaching and education needs felt by Clinical Heads was an understandable expression of the problem of heavy workload [CH 2009f].

(5.2) Complacency

The second threat is the success of the teaching culture itself – a culture that is co-dominant with clinical service – such that there is little drive to improve. In the words of a clinician educator informant,

"Complacency – we think we are doing a good job and we can rest on our laurels and think this is all we can do" (Dr O, personal communication, Apr 29, 2015). A senior informant chose an animal metaphor,

"I think that firstly over time because education becomes very structured and endowed… the threat is to be a happy fat cow[24], to be in that situation" (Dr W, personal communication, Aug 12, 2014). After decades of accolades it would only be human for TTSH leaders and educators to feel that nothing much else needed to be done to improve its teaching.

In the next chapter I will discuss and conclude.

[24] Happy, fat cow refers to an entity that is contented and well-stocked and fails to see the danger ahead e.g. the slaughter house

Chapter V. Discussion and Conclusion

In this chapter I will discuss the findings in the light of the research questions, the literature review and the perspective discussed in the earlier chapters. It is a careful comparison of insights deduced from complex adaptive systems and social worlds theories with patterns induced from my field data. To recap, the research questions are:

(iii) How did TTSH establish a teaching culture?

(iv) What is the impact on TTSH's teaching culture of transforming into an academic health centre?

In complexity theory, the findings are discussed using edge of chaos, emergence of new orders of teaching, positive feedback loops, stabilisers, transformation, semi-structures and sequenced steps. The Clan-Team culture is also explored in relation to the teaching culture. From the social worlds theory, boundary objects (teaching medical students, quality clinical education, product fit for purpose and talent) and boundary workers provide further illumination on the data and results. I will then conclude with a summary of the chapter.

(1) Complex Adaptive System

I will begin with the complexity theory to explain the findings and answer the research questions.

(1.1) Edge of Chaos

Of the three missions of patient care, education and research in TTSH, patient care has the longest existence at the edge of chaos i.e. a phase where outcomes are unpredictable and the possibility of emergence of new adaptive patterns/systems is maximum (Mennin, 2010). Over the last seven decades, external events like World War II, the TB epidemic, becoming a general hospital, explosive growth in patient volume, rising patient expectation, Singapore's ageing population, SARS and other infectious disease threats have kept TTSH at the edge of chaos. The interval between each sudden unexpected event is approximately 8 to 10 years previously but has shortened to 18 months in the last few years because of emerging infectious diseases. Therefore patient care in

TTSH “never quite settle into a stable equilibrium but never quite fall apart.” (Brown & Eisenhardt, 1997 p.29)

Against the background of turbulence in the patient care mission, medical education was more fortunate with five decades of steady incremental change and growth. These five decades were critical in allowing the teaching culture to take root and flourish. Education was not moved into the edge of chaos until 2009 but when it did, it was a double whammy: both undergraduate (strategic alliance with NTU) and postgraduate medical education (adoption of US-style residency system) had to change simultaneously, majorly and over a short timeline as described in the Results.

My original inquiry did not include research, which cropped up repeatedly in the data collection process. To continue to ignore it would be unbecoming of a scholarly endeavour and hence research has been discussed in a contextualised manner in this report. After the TB hospital era, research declined steadily except for two departments. While two external events moved education into the edge of chaos, it was an internal agent Dr W who precipitated research into a similar state in 2011. At the time of writing, both education and research are still positioned in this intermediate zone, and with it, the promise of “prolific, complex and continuous change” (Brown & Eisenhardt, 1997 p.29).

(1.2) Emergence of New Orders of Teaching

Just as certain events aka fluctuations precipitated new orders in Branson, Missouri, a series of fluctuations facilitated the emergence of new orders of teaching in TTSH. From 1905 with the arrival of the first medical students, TTSH has exhibited repeatedly self-organising emergent and transformative behaviour representative of a complex adaptive system (Chiles et al, 2004). Taking on the responsibility to educate medical students was a fluctuation that initiated a new order (Chiles et al, 2004) and became an artefact and emblem of the teaching culture. During WWII which was another major fluctuation, the bedside teaching that these first students experienced was kept “alive” and re-constituted by them who were practising doctors by then. With the internment of the British doctors, these local doctors believed that they must and could teach themselves to minimise disruption to their education. Hence with self-organisation they learned from one another and thereby preserved the practice of bedside teaching i.e. WWII broke the relationship with the British

doctors and the learning patterns, caused the local doctors to abandon existing mental models and pushed them to learn in new ways (Chiles et al, 2004).

With bedside teaching conducted by local doctors, a new mental model was born vis-à-vis that local doctors had the capability to teach and learn without help from the British doctors, heralding the emergence of a new order of teaching and a transformation for local doctors from a subservient to a leading role. The conviction and courage to persist in the face of adversity, the value that these doctors placed on teaching and education, and the belief in bedside teaching and their own ability to teach started to get entrenched, forming the nidus for the teaching culture to grow.

In 1961 TTSH re-opened its doors to medical students and five years later, it transformed from a TB hospital to a general hospital. These two events that were in close proximity temporally facilitated the emergence of another new order of teaching – educating and simultaneously embedding large number of students in the day-to-day routine of a busy general hospital that provided care for a diverse group of patients. With an ever-increasing number of patients and willing and capable clinical teachers, the new order became ingrained such that today it is still the valid and valued way to teach medical students. A new mental model had also emerged – that a doctor should be a medical expert and at the same time, a scholar-teacher (RCPSC, 2015). The operative assumption is that delivering care to patients is as important as teaching medical students and young doctors.

In 1992 formal organisational and management structures e.g. Medical Board, Clinical Heads group were established in TTSH (see Figure 4.1). This coincided with the third wave of founding fathers assuming leadership as heads of departments and chairmanship of the Medical Board. These founding fathers practised as doctors, provided leadership for TTSH and continued to teach students and younger colleagues. They triggered the emergence of yet another new order in teaching: the whole-of-medical-fraternity championing of education. They exemplified the understanding that personal involvement in the education of future generations of doctors is expected from all doctors - hospital leaders, heads of departments, senior doctors and junior doctors - to the point that this view articulated by an informant, *"Teaching is not something you choose. Teaching is something you are responsible for"* (Dr C, personal communication, Jul 7, 2014) resonated

across TTSH. With 20 years of ingraining, this understanding – that every TTSH doctor is a teacher – has become an assumption that is resistant to change (Schein, 2010).

Hence the decision in 2012 (see Figure 4.1) to mandate teaching and education as a component in every doctor's annual appraisal comes as no surprise because it is a natural progression from the assumption that every doctor is a teacher. The formalisation of education as a mandatory component in the annual appraisal sets up one of several self-reinforcing loops, which will be explored in the next section.

The newest order of teaching to emerge relates to its alliance with NTU: TTSH doctors are not just teachers providing students with clinical learning; instead they are co-owners of the entire education process in LKCMedicine – from admission to five years of medical education through to graduation. The emergence of this new order is tightly coupled with its transformation into an AHC (see below) such that TTSH moves out of its zone of comfort as a mere teaching hospital into the edge of chaos by taking joint responsibility for every new doctor that graduates from LKCMedicine.

(1.3) Positive Feedback Loops

When TTSH re-established itself as a teaching hospital after WWII, positive feedback loops played an increasingly important role in making the teaching culture more robust – another feature of a complex system. Rickles, Hawe & Shiell (2007) offered this explanation about feedback, "In complex systems, feedback occurs between levels of organisation, micro and macro, so that the micro-level interactions between the subunits generate some pattern in the macro-level that then 'back-reacts' onto the subunits, causing them to generate a new pattern, which back-reacts again and so on." Conceivably, positive feedback loops started with the likes of Dr James Supramaniam and Dr Yeoh Seang Aun who had good learning experience in TTSH as students during the war years and chose to return to TTSH to work and build their careers upon graduation. Their choices set the example and influenced the decisions of subsequent generations of students and young doctors. As senior doctors and teachers, their expertise and love for teaching made them role models for more students and young doctors to emulate and *"those who cannot emulate had to eventually leave because they do not fit in"* (Dr W, personal communication, Aug 12, 2014) – self-reinforcing loops that embedded the status and built robustness in the system.

From the 1960s, the three waves of founding fathers, their connectedness and interdependencies, their arrival at TTSH and life-long careers facilitated by the pension scheme and absence of distractions, deepened the feedback loops and widened their influence. It was during the era of the third group of founding fathers that the phenomenon was named as “teaching culture”.

When this third group took up chairmanship of the medical board and headships in the early 1990s, CEOs were appointed to co-lead TTSH. What was remarkable was that the first three CEOs, who did not “grow up” in TTSH, saw the teaching culture as a heritage worth preserving and nurturing and not as a burdensome baggage. Described by the informants as facilitative leaders, they gave resources to support teaching and education and thereby created more positive feedback loops. The actions of these CEOs and their legacy have morphed into an assumption – that TTSH’s CEO will support teaching and education just like the Chair of the Medical Board. Had these CEOs not been supportive of the education mission, they would have been “stabilising mechanisms” (see below) and altered the teaching culture.

From the mid-1990s when feedback from students was structured and collected systematically, the tacit became explicit and the doctor-clinical teachers received regular assurance that the learners valued how and what they taught - encouragement for the doctors to continue and perhaps even improve. The introduction of teaching awards and recognition, and Teacher’s Day celebration provided more self-reinforcement into the system.

The realisation that good learning experience for students and young doctors translated into easier recruitment later provided even more incentive for the doctors to teach well, thereby adding more positive feedback loops. The positive feedback loops entrenched and deepened the teaching culture but “stabilizing mechanisms” (Chiles et al, 2004) exist to stabilise the system – this will be described in the following section.

This section will close with a brief word on research and its feedback loops. Unlike education, the feedback loops for research were predominantly inhibitive for more than a decade. For a hospital that grew exponentially in patient load and complexity and steadily in its education mission, research growth was stunted such that an informant declared,

"*Research was barely alive*." (Dr A, personal communication, Apr 27, 2015) Its emergence into a new order, catalysed by Dr W's leadership, had inbuilt mechanisms that encouraged the rapid formation of feedback loops and loops that have short turn-around time. Clearly the hope – and assumption - is that research growth can be accelerated with careful management.

(1.4) Stabilising Mechanisms

Stabilising mechanisms are people or events that regulate the complex system to balance the dynamics of positive feedback and do not relate to system equilibrium (Chiles et al, 2004). Negative feedback that halts or reverses the direction of change is a stabilizing mechanism (Rickles et al, 2007). During the five decades of incremental growth in TTSH's education endeavour, positive feedback loops dominated and negative or inhibitive feedback loops were few. The absence of negative feedback loops and the proliferation of positive feedback loops helped the teaching culture to take root.

In the 2000s, the reaction triggered by the relentless increase in patient load and complexity became an important stabilising mechanism for the positive feedback loops. The informants now perceive the abundance of patients – a key contributor to TTSH's teaching culture – as a threat. Heads of departments (HODs) when faced with the need for greater doctor-manpower to deliver care and also to take on more teaching in the face of resources that were not forthcoming, expressed their concerns repeatedly. The underlying mental model and assumption deserve explication: the doctors' role as medical experts to deliver care is quintessential and unquestionable and the doctors' role as scholar-teacher to educate the next generation is also core. Both are equally important to TTSH doctors and if there is conflict between the two, the solution is not to abandon one in favour of the other but to look for ways to reduce or remove the conflict, and keep both.

Another stabilising mechanism is illustrated by this comment from an informant, "*Five to ten years ago, the powerful education agenda was so prevalent that leadership was intervening already, leadership was telling education not to take so many good people, otherwise the other parts of the hospital will 'collapse'*." (Dr L, personal communication, Apr 24, 2015) The education mission was so attractive that capable doctors were refusing appointment to headships and other administrative-management leadership and chose

teacher-educator appointments instead. The Chairman of Medical Board intervened to avert a “brain drain” into education and hollowing out of the headship-level and middle management i.e. CMB’s intervention was a stabilising mechanism. Two assumptions can be elucidated: (i) when pushed to the extreme, TTSH leaders will prioritise patient care above education where talent is concerned and (ii) in a publicly funded hospital, the deployment of talent is not an individual’s decision solely but a negotiated process between the individual and the leaders.

The third stabilising mechanism is the collective mind of a group of educators and leaders – several of who are my informants. They will pause to take stock periodically especially in response to an event that prompts introspection. They have the courage to speak, the gravitas to capture attention and the eloquence to convince. Individually and collectively they have identified complacency as a threat to the teaching culture and it will be a safe assumption that they would exert their influence to prevent the threat from becoming reality. Their collective understanding, articulation and action will stabilise the teaching culture and not allow it to self-destruct.

(1.5) Transformation

Before the invitation from NTU to transform into an academic health centre, an earlier subtle but powerful transformation had occurred - TTSH’s teaching culture “coming into its own” as described below.

In close-knit communities like the medical school and profession like Medicine, relationships among students and doctors are multiple and interdependent. In the bygone era before the onset of information technology and digital communication, the word of mouth was key in spreading the message about the clinical teachers and learning environment – the “massively entangled” (Begun et al, 2003 p.256) interaction among students and doctors was fertile ground for such spread. The word of mouth about TTSH’s teaching culture was borne out by students’ actual learning experience such that at some point in the 1990s before digital and electronic media became the norm, the conversation turned and a transformation occurred: the teaching culture “came into its own”. The teaching culture itself has become the magnet, the draw for students and young doctors, and not just the clinical teachers, the learning experience and environment, and the abundance of patients. At that

point in addition to the human capital (clinical teachers) and physical capital (learning environment and patients), the reputational capital began to contribute to the deepening of the teaching culture.

When NTU's invitation came in 2009, TTSH said yes to the transformation into an academic health centre (AHC) with cautious optimism. The prevalent view is that for many years TTSH has embraced and delivered on the triple mission of patient care, education and research, making TTSH effectively an AHC in substance even if not in name. The formal alliance with NTU-LKCMedicine signals recognition and legitimisation of TTSH's status as an AHC – a welcomed milestone. The assumption was also that the alliance would widen TTSH's network and therefore influence, and bring resources and opportunities for the education and research missions.

Caution is advocated because NTU and the international partner are assumed to be complex organisations and the multiple relationships that TTSH builds with them will be non-linear, interdependent, and unpredictable. The "Yes" to the alliance is an agreement to change TTSH's identity, to move the education endeavour into the edge of chaos and to face a future that is less predictable – an understandably uncomfortable position for a 170-year-old institution.

(1.6) Semi-Structures

Semi-structures provide sufficient organisation for change to occur but not so much rigidity that change is hindered (Brown & Eisenhardt, 1997). Semi-structures helped in the change process and TTSH utilised several in its transformation into an AHC. The first was a guiding vision that is embedded in the reality of healthcare in Singapore. The coming together of a core group of leaders and educators to articulate the vision for the new medical school was one of the sequenced steps (see below) in the transformation. The vision that resulted provided guidance for the way forward and reference for TTSH and the clinician-educators when working with stakeholders became challenging. The vision however was not a published statement that permeated physical and online spaces. It was an entity that was presented to different stakeholders with a nuanced touch that would resonate with that particular audience better.

Leaders and educators gathering to articulate a guiding vision were emblematic of the Clan culture (Jacobs et al, 2013) with emphasis on cohesiveness and participation, and an orientation towards internal coherence and integration. This Clan culture would manifest in the steps in transformation to be explained below.

Another semi-structure was the NHG and TTSH education teams comprising doctor-educators and administrators. A common vision, concurrent appointment of key doctor-educators in two or more teams and joint programmes brought about an extensive network and interdependence among the teams. There was sufficient structure for routine work and implementation of tasks related to the transformation to be completed efficiently. At the same time the teams remained adaptable and flexible to respond to changing needs e.g. changing a staff/faculty development programme to meet the needs of clinical teachers better. What was remarkable was that NHG and TTSH did not commission an AHC transformation taskforce/team. Instead the education teams were tasked to work with existing structures e.g. Medical Board, Clinical Heads to effect the transformation.

The existing NHG and TTSH leaders and organisational decision-making bodies e.g. the Medical Board, were also important semi-structures. In addition to traditional roles as approver for resources and communication channels, they were important sounding boards for potentially difficult decisions in the transformation journey. The leaders and decision-making bodies never dictated to the education teams but through mentoring and persuasion, made their views and preferences known.

The Clinical Heads group – a peer group for the education teams, was yet another semi-structure critical to the transformation. Like the leaders, they were an important communication channel and sounding board for the education teams. They provided structure for the decision-making process. At the same time because they are close to the ground-level doctor-clinical teachers, they will speak up, negotiate and ask for leeway and thereby ensure that the education teams remain flexible.

An enduring assumption that the education teams have is that leaders and peers share the educators' understanding about the transformation: preserving TTSH's teaching culture in the change process is an overarching common goal.

(1.7) Sequenced Steps

Sequenced steps are “choreographed transitions” (Brown & Eisenhardt, 1997 p.29) that successful leaders organised for their teams to move from the present to the future. What felt like chaos while the events were playing out, on review were probably sequenced steps in a choreographed transition that TTSH had executed.

After saying “Yes” to NTU’s invitation, two concurrent steps preceded the rest: (a) defining the relationship with NTU-LKCMedicine and (b) developing a vision for the medical school that was shared and owned by NHG-TTSH. What followed shortly after was the identification and up-skilling of suitable clinician-educators, formation of education teams to support the clinician-educators and resourcing these teams to do their work. A deep-seated assumption is that getting the right doctors to lead the transformation is paramount to its success (Barber et al, 2012) and hence considerable time and effort were spent in their identification, selection and training.

Extensive communication took place next. Internally, getting buy-in from Clinical Heads and ground level doctors was facilitated through meetings and department visits to prepare for the upcoming changes. “Soft” (e.g. sharing and persuasion) and “hard” (e.g. mandating the education component in doctors’ appraisal) approaches were implemented simultaneously to nudge doctors towards the desired future state. Communication went hand-in-hand with making available the resources for doctors to upgrade their teaching skills. An operative assumption is that people, their knowledge, skills and talent are important resources for which TTSH must exercise good stewardship in the transformation journey.

Engagement with external stakeholders happened concurrently. The aim was to exercise good stewardship of the relationships with all stakeholders. The belief is that through communication and engagement, TTSH is able to maintain a fruitful relationship with Yong Loo Lin School of Medicine and also deliver on its promise to LKCMedicine. Engaging the Ministry of Health and other hospitals was in part fuelled by the belief that their support was important and in part by the belief that TTSH’s vision of the medical school product would be most suitable to meet Singapore’s healthcare needs.

The proactive and welcoming stance TTSH adopted towards NTU and Imperial College was undergirded by a key assumption articulated by an informant; *“TTSH and NHG*

will take the responsibility of delivering the product that we envisage when we first thought about this medical school however much turmoil that is within our partners." (Dr W, personal communication, Aug 12, 2014) The final step was to close the loop with regular reporting-back and updates given to leaders (e.g. TTSH Chairman, Medical Board, NHG Senior Management) and peers about the transformation and whether any adjustment was needed.

Sequenced steps and choreographed transition were not unique to the education mission. Under Dr W's leadership, the research endeavour was subjected to a similar choreographed transition: defining the relationship with NTU and LKCMedicine, developing a vision, assembling and training the teams, getting internal buy-in, nurturing talent, engaging external stakeholders and checking-in regularly with leaders and peers. Hence it is probably valid to state that choreographed transition and sequenced steps are not unique to the teaching culture but are part of the TTSH culture.

(2) Clan-Team Culture

In an organisation that has strong alignment with a certain culture type, those aspects of performance valued by such a culture will be enhanced (Jacobs et al, 2013). The "kampong" spirit in TTSH has a strong people dimension, which is one of the dimensions in the Competing Values Framework (Quinn & Rohrbaugh, 1981; Jacobs et al, 2013). The "kampong" spirit approximates the Clan-Team culture with strengths in people-centredness, cohesiveness, participation, internal coherence and integration (Jacobs et al, 2013). While internal coherence is valued, TTSH's Clan-Team culture is not inward looking but is welcoming to students and young doctors, which is instrumental in helping TTSH build its teaching culture and do well when teaching performance is measured. Such a culture is also antithetical to unnecessary secrecy and keeping members in the dark – hence the openness and internal communication throughout the transformation journey.

TTSH's goal-oriented emphasis when engaging external stakeholders is better aligned with the Rational culture, the "doing" orientation where convincing external parties that our version of the product fit for purpose is the legitimate version is paramount.

Hence the AHC transformation has provided a common vision to unite TTSH and strengthen the Clan-Team culture. At the same time it has also been rallying call for TTSH to

engage and convince its multiple partners that its version of the new medical graduate is the right one for Singapore.

(3) Social Worlds, Boundary Objects and Boundary Workers

The second theory that can depict the complexity of the institution and events is social worlds theory. It is a conflict theory whereby interactions between groups are conflicts about establishing or reinforcing their boundaries and gaining legitimacy for their worlds (Clarke, 1991). Several sets of social worlds were discernable in TTSH's history: British doctors versus local doctors, TTSH as TB hospital versus general hospital, TTSH versus General Hospital where Dr N was a boundary worker, TTSH versus YLLSoM, TTSH-NHG versus NTU-LKCMedicine, doctor-clinicians versus doctor-educators, leaders versus researchers etc. I will select those social worlds related to boundary objects and workers for elaboration.

(3.1) Boundary Objects

A boundary object is one at the intersections where social worlds meet, to be "translated" to address multiple needs or demands placed on it by these intersecting worlds (Clarke, 1991), for example "treaties among countries, software programs for users in different settings, even concepts themselves" (Clarke & Star, 2008 p.121). It is a loosely structured bridge used jointly by the social worlds that has different meanings in the different worlds but within each social world, the meanings are structured and remain recognisable by the other (Trompette & Vinck, 2009). Boundary objects are important to the social worlds and the right and power to define them leads to controversy and competition (Clarke & Star, 2008). I have selected a few boundary objects with bearing on the education mission for this discussion.

(3.1A) Teaching Medical Students

In the 1950s and 1960s Dr N, a second wave founding father straddled two social worlds: TTSH that focused exclusively on TB and did not contribute to student education and that of the General Hospital that treated a wide spectrum of patients and taught medical students from University of Malaya-University of Singapore. In addition to his work as chest physician and TB researcher in TTSH, he attended teaching sessions in the General

Hospital where his passion for teaching medical students was kindled. Aided by the stories of TTSH as the first teaching hospital Dr N and his peers initiated a series of actions that culminated in the return of students to TTSH in 1961. Dr N "translated" the memory of teaching medical students and his aspiration into reality, bringing students back to TTSH during its twilight years as a TB hospital. The idea of teaching medical students became a boundary object because "teaching medical students" was a bridge used jointly by TTSH, General Hospital and the University in the negotiation. Within TTSH however, "teaching medical students" had clear meaning founded on the narratives of what had been done prior to WWII and the TB era and shaped by the interpretation of "teaching" by Dr N et al.

"Teaching medical students" as a boundary object was successfully "translated" and developed in TTSH such that the third wave of founding fathers named it "teaching culture".

(3.1B) Quality Clinical Education

The relationship between the medical school and hospital is an unequal partnership as illustrated in the Literature Review. In the case of YLLSoM and TTSH, the only common goal was the clinical education of medical students. Though the relationship is unequal, it is a one-to-one relationship and the disparity is not gaping, in contrast to that with LKCMedicine as explained below.

In 2000 when YLLSoM established the Associate Dean scheme, Dr C, a third wave founding father became TTSH's first associate dean. The associate dean performs boundary work (Wilson-Kovacs & Hauskeller, 2012) at the interface of the medical school and the hospital. The associate dean needed to bridge the gap between the social worlds and "advance an original vision" (Wilson-Kovacs & Hauskeller, 2012 p.503): the vision of quality clinical education across all sites. Prior to the appointment of the associate dean, the conflicts between medical school and hospital about resources and what constituted quality education were either left unresolved and allowed to fester or negotiated in a haphazard manner.

The Associate Dean scheme precipitated a transformation in the boundary object: from "teaching medical students" to "quality clinical education". "Quality education" had been layered on top of "teaching" and the associate dean's work was to interpret it into an entity that was acceptable to TTSH and translate that into activities. Quality education had different

meanings in the medical school and in the hospital but TTSH's interpretation found resonance with the students and gain increasing legitimacy over time: within the whole-of-TTSH, with students and young doctors, with YLLSoM and ultimately, within Singapore.

(3.1C) Product Fit for Purpose

Unlike the one-to-one relationship with YLLSoM, the alliance with NTU was multilateral involving several social worlds and multiple intersections: on one side the social worlds of NHG and of TTSH; on the other side, the social worlds of NTU, the nascent LKCMedicine and Imperial College London. Into this milieu "product fit for purpose" became the boundary object. "Product fit for purpose" refers to the new graduate from LKCMedicine being fit to work in Singapore's environment and educated to deliver healthcare appropriate to local needs. The TTSH leaders' and educators' vision for the new medical school formulated in 2009 was phrased as "product fit for purpose". TTSH introduced this concept to NHG, which gained legitimacy immediately. "Product fit for purpose" was then presented to NTU, LKCMedicine and Imperial College from the start of the negotiation. Each institution interpreted it differently and gave slightly varied meaning to the concept "but those meanings are sufficiently structured to be recognised by the other" (Trompette & Vinck, 2009 p.5).

The evolution of the boundary objects positioned at the interface between medical schools and TTSH deserved elaboration. In its first iteration it was "teaching medical students", phrased as a straightforward teacher-centric activity. Its next iteration "quality clinical education" represented a series of activities that had a learner-centric stance. The third iteration "product fit for purpose" is characterised by three changes compared to the previous version: (i) the language has shifted from the realm of teaching-education into healthcare, (ii) the emphasis is not limited to activities-processes but includes product and outcome, and (iii) the concept embodied not a related single series but an interdependent web of activities. The evolution and sophistication of the boundary object paralleled TTSH's development of its teaching culture and with it, the institution's increasing power to define for itself and its partners, clinical education and the end-product that TTSH sees befitting the changing healthcare landscape.

(3.1D) Talent

Within TTSH, where the social world of hospital leaders meets that of clinician educators, talent – specifically the multi-talented doctors and their deployment, becomes a boundary object. The hospital leaders' assumption is that TTSH's wellbeing is predicated on equitable distribution of talent to all areas: administration and clinical service, education and research. On the other hand, the clinician educators believed that with undergraduate and postgraduate education undergoing rapid changes, the talented doctors especially those who are willing, should serve the education mission so that the teaching culture is preserved, and TTSH's version of education and end product will gain greater legitimacy nationally. At the time of writing, talent remains an object of competition between hospital leaders and clinician educators and will continue to be so between these two social worlds for the foreseeable future.

(3.2) Boundary Workers

Boundary workers are positioned in the conflict zone between social worlds. Their primary responsibility is to reinforce boundaries, gain legitimacy for their worlds (Clarke, 1991) and do so in and for both worlds. Several groups of boundary workers will be discussed here in addition to those examined in earlier chapters.

(3.2A) NHG CEO and LKCMedicine Dean

In addition to appointment of doctors as clinician-educators to help interpret the views and values of the medical school to the hospital and vice-versa, LKCMedicine's inter-digitation with NHG-TTSH is more extensive, starting at the top leadership level. The appointment of the dean of LKCMedicine and CEO of NHG into the governing board of the other institution likens their role to that of clinician-scientists whose task is to "…constructively address cultural clashes and language gaps and deliver the agenda set by the translational challenge." (Wilson-Kovacs & Hauskeller, 2012 p.504) The interdependent relationship meant that they must translate the strategic directions and advance the agenda of their own and the other social world meaningfully on both sides. Aside from a legal agreement to undergird the relationship between hospital and medical school, each leader needs to work within the context of the unequal relationship to enable a sharing of common goals, structures and resources (Mubuuke et al, 2014). Their skills as boundary workers will influence TTSH's transformation into an AHC powerfully. From the interviews with

informants, there are indications that NHG CEO would be a successful boundary worker.

(3.2B) TTSH-NHG Education Teams

As mentioned previously TTSH did not commission an AHC transformation taskforce but provided resources, reorganised existing education teams and entrusted them with the transformation. The education teams were boundary workers at several interfaces. The education team negotiated with YLLSoM to reassure them of TTSH's commitment to provide placements and quality education and manage their concerns about the relationship with LKCMedicine. The education team negotiated with LKCMedicine for fair governance of curriculum, pedagogy, resources and implementation and managed their concerns about the continuing relationship with YLLSoM. Within TTSH, the education team represented the interests of both schools and negotiated with their leaders for resources and to share the responsibility for a product fit for purpose, and with the schools, defended NHG-TTSH's vision and requests for resources. With their colleagues the education team negotiated for allegiance to the education vision and leadership, and commitment to teach, and in turn represented their colleagues' concerns to the schools. TTSH leaders understood that the human and social sides (Mallon, 2003) of the alliance with NTU-LKCMedicine are bigger determinants of a productive relationship than money and economics, and hence the care and investment in the selection and nurturing of the education teams. The success of the education teams is intimately related to their success as boundary workers welcomed by hospital and schools.

(3.2C) A New Boundary Worker for Research

Dr W in stepping in to reorganise the TTSH research unit effectively replaced Dr A as a boundary worker at the intersection of the social world of leaders and that of researchers. Like the clinician-scientists he is an "…orchestrator of the interaction between disparate professional cultures." (Wilson-Kovacs & Hauskeller, 2012 p.504) Committed to the idea that TTSH must deliver on the triple mission of patient care, research and education, he took it upon himself to understand the key intricacies within the research unit and its relationship with LKCMedicine and NTU, thereby gaining legitimacy as a supporter of the research mission. Using a combination of soft and hard measures he "translated" the AHC parameters for research for the TTSH researchers and NHG-TTSH leaders. From the

researchers he engendered a commitment to elevate TTSH's research capabilities to that expected of an AHC. From the leaders he exacted resources to support the researchers. At the same time he dissuaded some talented doctors from becoming educators and redirected them to devote their energy to the research mission. In a knowledge intensive arena like biomedical research, the availability of talent is often more important than material resources like money. At the time of writing, early results hinted at Dr W's success as a boundary worker.

(4) Conclusion

The history of TTSH and development of its teaching culture can be segmented into five eras during which successive orders of teaching emerged: bedside teaching by local doctors, embedding students in the day-to-day care of patients, the doctor as a medical expert and teacher at the same time, the whole-of-medical-fraternity championing of education and finally co-owners with LKCMedicine of the entire education process. Seen from another angle, the progression of boundary objects: from teaching medical students to providing quality clinical education to ensuring that the product is fit for purpose, parallels the emergence of teaching orders and TTSH's growing sophistication in fulfilling its education mission.

Many multi-layered positive feedback loops have built up over six decades to entrench the teaching culture incrementally. However stabilising mechanisms have arisen in the last few years to dampen these self-reinforcing feedback loops. Instead of negatively impacting the teaching culture, the stabilisers are necessary checks and balances that make the teaching culture more robust.

TTSH's "kampong" spirit approximates the Clan-Team culture with strengths in people-centredness and internal coherence. When coupled with a welcoming stance to students and young doctors, it is instrumental in helping TTSH build its teaching culture and do well when teaching performance is measured.

The alliance with NTU started TTSH on its transformation into an AHC – a process that is on going at the time of writing. Through sequenced steps that coalesced into a choreographed transition, TTSH is transforming itself and changing its identity. To internal

stakeholders TTSH ensures that the teaching culture continues to flourish. To external stakeholders, TTSH's engagement centres on legitimisation of its version of product fit for purpose, nudging stakeholders to consider it as most befitting for Singapore. Boundary workers at the interface between hospital and school need to negotiate skilfully to reinforce boundaries, gain legitimacy for their worlds and do so in and for both worlds.

Research, the second area of collaboration between TTSH and NTU began its revival when Dr W positioned himself as a boundary worker at the intersection of the leaders' world and researchers' world. Again through sequenced steps that cohere into a choreographed transition, the goal is to move the research mission towards being an equal with NTU-LKCMedicine, and to build a research culture that has been missing for a long time in TTSH.

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ANNEX A

Interview with Chairmen, Medical Board of TTSH and selected senior doctors
The Principal Investigator will conduct the interviews

Questions

Thank you for agreeing to this interview. Please take some minutes to read through the information sheet and sign the consent form.

Can we start by talking about the number of years you have been working in TTSH?

In these years that you have spent in TTSH, do you think TTSH has a culture that promotes teaching i.e. pro-teaching culture?
What do you see/perceive that made you say, “Yes” / “No”?

If yes, what are the factors* that helped to establish this culture?
How can we then embed this culture?
(If needed, factors can be classified as people, power, structure, and symbols)

If no, is such a culture important?
If this culture is important, what is missing that TTSH needs to address to establish this culture?
If this culture is not important, what kind of culture is important?

(For Chairmen, Medical Board interviewees)
Is there any incident / policy relating to education and teaching during your tenure as Chairman, Medical Board for TTSH that you remember as impactful on TTSH? Can you tell me about it?

(For senior doctor-interviewees)
Is there any incident relating to education and teaching in your dual role as clinician and teacher that you remember as impactful on TTSH? Can you tell me about it?

Is there anything else that you will like to add before we end this interview?

Thank you for your time and input.

ANNEX B

OFFICIAL USE ONLY	
Doc Name : Consent Document Template	
Doc Number : 207-001	
Doc Version : 3	**Date :** 01 Jun 2009

PARTICIPANT INFORMATION SHEET

1. Study Information

Protocol Title:
A Pro-Teaching Culture and the Scholarship of Teaching in Tan Tock Seng Hospital, Singapore

Principal Investigator & Contact Details:
Clinical Associate Professor Tham Kum Ying
Senior Consultant, Emergency Department and
Assistant Chairman, Medical Board (Education)
Tan Tock Seng Hospital
Tel: 63578777

Study Sponsor:
NIL

2. Purpose of the Research Study

You are invited to participate in a research study. It is important to us that you first take time to read through and understand the information provided in this sheet. Nevertheless, before you take part in this research study, the study will be explained to you and you will be given the chance to ask questions. After you are properly satisfied that you understand this study, and that you wish to take part in the study, you must sign this informed consent form. You will be given a copy of this consent form to take home with you.

You are invited because as Chairmen, Medical Board of TTSH / senior doctors who have spent many years in TTSH, you have led and shaped its medical education mission. Hence your views provide invaluable information about the establishment and embedment of a pro-teaching culture in TTSH.

This study is carried out to find out if the pro-teaching culture of Tan Tock Seng Hospital (TTSH) approximates the scholarship of teaching.

We will recruit 9 senior clinicians from Tan Tock Seng Hospital from 1 Jan 2013 to 31 Dec 2013. All clinicians recruited will be involved in this study.

3. What procedures will be followed in this study

If you take part in this study, you may be asked to participate in an one-to-one interview with the principal investigator. The interview will be audio-recorded.

Your participation in the study will last for the duration of time needed to complete the interview. Under exceptional circumstance, you may be requested to be interviewed again by the principal investigator.

4. Your Responsibilities in This Study

If you agree to participate in this study, you should follow the advice given to you by the study team.

5. What Is Not Standard Care or Experimental in This Study

Not applicable

6. Possible Risks and Side Effects

None. Participation in the interview will not lead to any risk or side effects.

7. Possible Benefits from Participating in the Study

In the last 3 years, TTSH has invested heavily in medical education. If you participate in this study the

qualitative information you provide will help to assess if TTSH has the culture and infrastructure to reap significant returns on these investments in the near and intermediate future.

8. Important Information for Women Subjects
Not applicable.

9. Alternatives to Participation
You are free to decide not to participate in the interview.

10. Costs & Payments if Participating in the Study
There is no payment for participation in this study.

11. Voluntary Participation
Your participation in this study is voluntary. You may stop participating in this study at any time. Your decision not to take part in this study will not affect any benefits to which you are entitled. If you decide to stop taking part in this study, you should tell the Principal Investigator.

The Investigator may stop your participation in the study at any time if it is in your best interests or if you do not follow instructions required to complete the study adequately.

In the event of any new information becoming available that may be relevant to your willingness to continue in this study, you (or your legally acceptable representative, if relevant) will be informed in a timely manner by the Principal Investigator or his/her representative.

12. Compensation for Injury
Not applicable.

13. Confidentiality of Study and Medical Records
Information collected for this study will be kept confidential. Your records, to the extent of the applicable laws and regulations, will not be made publicly available.

However Regulatory Agencies and NHG Domain-Specific Review Board and Ministry of Health will be granted direct access to the audio files and transcripts of interviews to check study procedures and data, without making any of your information public. By signing the Informed Consent Form attached, you (or your legally acceptable representative, if relevant) are authorizing such access to your study and medical records.

Data collected and entered into the Case Report Forms are the property of NHG. In the event of any publication regarding this study, your identity will remain confidential.

14. Who To Contact if You Have Questions
If you have questions about this research study, you may contact the Principal Investigator:
Clinical Associate Professor Tham Kum Ying
Senior Consultant, Emergency Department and
Assistant Chairman, Medical Board (Education)
Tan Tock Seng Hospital
Tel: 63578777

The study has been reviewed by the NHG Domain Specific Review Board (the central ethics committee) for ethics approval.

If you want an independent opinion of your rights as a research subject you may contact the NHG Domain Specific Review Board Secretariat at 6471-3266. If you have any complaints about this research study, you may contact the Principal Investigator or the NHG Domain Specific Review Board Secretariat.

CONSENT FORM

Protocol Title:
A Pro-Teaching Culture and the Scholarship of Teaching in Tan Tock Seng Hospital, Singapore

Principal Investigator & Contact Details:
Clinical Associate Professor Tham Kum Ying
Senior Consultant, Emergency Department and
Assistant Chairman, Medical Board (Education)
Tan Tock Seng Hospital
Tel: 63578777

I voluntarily consent to take part in this research study. I have fully discussed and understood the purpose and procedures of this study. This study has been explained to me in English, a language that I understand. I have been given enough time to ask any questions that I have about the study, and all my questions have been answered to my satisfaction.

Dr H	_____	26 Jun 2014
Name of Participant	Signature	Date

Translator Information
Not applicable.

Witness Statement
Not applicable.

Investigator Statement
I, the undersigned, certify that I explained the study to the participant and to the best of my knowledge the participant signing this informed consent form clearly understands the nature, risks and benefits of his/her participation in the study.

_____	_____	26 June 2014
Dr Tham Kum Ying	Signature	Date

SCHEME OF ASSOCIATE DEANS

APPOINTMENT

1. Associate Deans shall be appointed in hospitals involved actively in undergraduate and postgraduate medical training, as determined and agreed by both the National University of Singapore (NUS) and the Ministry of Health (MOH). Smaller training institutions may have a "Director of Medical Training" appointed on the same terms of reference as the Associate Deans.

2. The Chairman of the Medical Board of the hospital concerned shall nominate a suitable candidate from among the staff of senior consultant grade for the appointment of Associate Dean or Director of Medical Training.

3. The nominated candidate should have a good track record in providing undergraduate and postgraduate clinical teaching. He/She should also have demonstrated a keen interest in medical education in general and enjoy a high academic standing among the medical profession.

4. The appointment shall be made jointly by the Director of Medical Services, Ministry of Health, and the Dean, Yong Loo Lin School of Medicine (YLL SoM), NUS.

5. The appointment shall be for a term of three years (3) and is renewable.

REPORTING STRUCTURE

1. In matters relating to undergraduate and house officer medical training, the Associate Dean shall report to the Dean, YLL SoM.

2. In matters related to postgraduate medical training, the Associate Dean shall report to the Director of Medical Services and the Joint Committee on Specialist Training.

3. In hospital or institutional training matters, the Associate Deans shall report to the Chairman of Medical Board of the respective hospital or institution.

TERMS OF REFERENCE

The Associate Deans shall:

1. Ensure and supervise the implementation of undergraduate medical training programme for medical students as determined by the YLL SoM, NUS.

2. Assist the YLL SoM and the Joint Committee on Specialist Training (JCST) in the formulation of undergraduate and postgraduate medical training curricula, requirements and programmes.

3. Assist the Singapore Medical Council's (SMC) Education Committee and the Dean, YLL SoM in supervising and implementing the revised training programme for House Officer training in their respective hospitals.

4. Assist the Joint Committee on Specialist Training (JCST) in supervising the implementation of Basic and Advanced specialist training programmes in their respective hospitals.

ANNEX D

List of Tan Tock Seng Hospital Clinical Heads Meeting Minutes, 1992-2012

CH 1992: TTSH Clinical Heads meeting minutes, 1992, 8 May

CH 1993: TTSH Clinical Heads meeting minutes, 1993, 9 Feb

CH 1994: TTSH Clinical Heads meeting minutes, 1994, 4 Feb

CH 1995: TTSH Clinical Heads meeting minutes, 1995, 24 Feb

CH 1996a: TTSH Clinical Heads meeting minutes, 1996, 2 Feb

CH 1996b: TTSH Clinical Heads meeting minutes, 1996, 11 Sep

CH 1997: TTSH Clinical Heads meeting minutes, 1997, 28 Feb

CH 1998a: TTSH Clinical Heads meeting minutes, 1998, 8 May

CH 1998b: TTSH Clinical Heads meeting minutes, 1998, 2 Oct

CH 2000a: TTSH Clinical Heads meeting minutes, 2000, 14 Apr

CH 2000b: TTSH Clinical Heads meeting minutes, 2000, 6 Oct, recorded by Kam, F.H.

CH 2001: TTSH Clinical Heads meeting minutes, 2001, 9 Nov, recorded by Kam, F.H.

CH 2002: TTSH Clinical Heads meeting minutes, 2002, 18 Jan, recorded by Kam, F.H.

CH 2005a: TTSH Clinical Heads meeting minutes, 2005, 13 May, recorded by Kam, F.H.

CH 2005b: TTSH Clinical Heads meeting minutes, 2005, 15 Jul, recorded by Kam, F.H.

CH 2005c: TTSH Clinical Heads meeting minutes, 2005, 16 Sep, recorded by Kam, F.H.

CH 2006a: TTSH Clinical Heads meeting minutes, 2006, 19 May, recorded by Kam, F.H.

CH 2006b: TTSH Clinical Heads meeting minutes, 2006, 14 Jul, recorded by Kam, F.H.

CH 2007a: TTSH Clinical Heads meeting minutes, 2007, 9 Feb, recorded by Lee, B.

CH 2007b: TTSH Clinical Heads meeting minutes, 2007, 27 Apr, recorded by Lee, B.

CH 2007c: TTSH Clinical Heads meeting minutes, 2007, 15 Jun, recorded by Lee, B.

CH 2007d: TTSH Clinical Heads meeting minutes, 2007, 13 Jul, recorded by Kam, F.H.

CH 2007e: TTSH Clinical Heads meeting minutes, 2007, 24 Aug, recorded by Lee, B.

CH 2007f: TTSH Clinical Heads meeting minutes, 2007, 5 Oct, recorded by Lee, B.

CH 2008a: TTSH Clinical Heads meeting minutes, 2008, 22 Feb, recorded by Lee, B.

CH 2008b: TTSH Clinical Heads meeting minutes, 2008, 24 Oct, recorded by Tiong, C.

CH 2009a: TTSH Clinical Heads meeting minutes, 2009, 16 Jan, recorded by Tiong, C.

CH 2009b: TTSH Clinical Heads meeting minutes, 2009, 27 Feb, recorded by Lee, B.

CH 2009c: TTSH Clinical Heads meeting minutes, 2009, 24 Apr, recorded by Lee, B.

CH 2009d: TTSH Clinical Heads meeting minutes, 2009, 22 May, recorded by Tiong, C.

CH 2009e: TTSH Clinical Heads meeting minutes, 2009, 17 Jul, recorded by Tiong, C.

CH 2009f: TTSH Clinical Heads meeting minutes, 2009, 25 Sep, recorded by Lee, B.

CH 2010a: TTSH Clinical Heads meeting minutes, 2010, 22 Jan, recorded by Lee, B

CH 2010b: TTSH Clinical Heads meeting minutes, 2010, 19 Mar, recorded by Lee, B.

CH 2010c: TTSH Clinical Heads meeting minutes, 2010, 16 Apr, recorded by Lee, B.

CH 2010d: TTSH Clinical Heads meeting minutes, 2010, 16 Jul, recorded by Lee, B.

CH 2010e: TTSH Clinical Heads meeting minutes, 2010, 17 Sep, recorded by Lee, B.

CH 2010f: TTSH Clinical Heads meeting minutes, 2010, 22 Oct, recorded by Lee, B.

CH 2011a: TTSH Clinical Heads meeting minutes, 2011, 21 Jan, recorded by Lee, B.

CH 2011b: TTSH Clinical Heads meeting minutes, 2011, 21 Feb, recorded by Lee, B.

CH 2011c: TTSH Clinical Heads meeting minutes, 2011, 25 Mar, recorded by Lee, B.

CH 2011d: TTSH Clinical Heads meeting minutes, 2011, 29 Apr, recorded by Lee, B.

CH 2011e: TTSH Clinical Heads meeting minutes, 2011, 27 May, recorded by Lee, B.

CH 2011f: TTSH Clinical Heads meeting minutes, 2011, 22 Jul, recorded by Lee, B.

CH 2011g: TTSH Clinical Heads meeting minutes, 2011, 12 Sep, recorded by Tiong, C.

CH 2012a: TTSH Clinical Heads meeting minutes, 2012, 13 Jan, recorded by Tiong, C.

CH 2012b: TTSH Clinical Heads meeting minutes, 2012, 17 Feb, recorded by Lee, B.

CH 2012c: TTSH Clinical Heads meeting minutes, 2012, 18 May, recorded by Ng, E.B.

CH 2012d: TTSH Clinical Heads meeting minutes, 2012, 15 Jun, recorded by Lee, B.

CH 2012e: TTSH Clinical Heads meeting minutes, 2012, 20 Jul, recorded by Ng, E.B.

Reflective Statement

"If I have seen further it is by standing on the shoulders of giants"
Sir Isaac Newton (1643 – 1727)

Medical schools take pride in teaching research and related skills to every medical student such that upon graduation young doctors know the value of research in advancing medicine and are equipped with some skills. However most medical school curriculum equates research with specific methods, focusing almost exclusively on quantitative methods of data collection, analysis and interpretation. The teaching material and research books owned by most medical students make little mention of worldview assumptions and inquiry strategies. I graduated from such a medical school and owned such books. I was ignorant of different worldviews in relation to research and that scholarship should start with explication of worldviews and consideration for different strategies of inquiry. This incomplete understanding and narrow view of research did not impact the biomedical and clinical research that I undertook until 2007.

I was appointed as Associate Dean to provide education leadership for medical students and house officers in Tan Tock Seng Hospital (TTSH). One of the house-officers performed an act that was extremely unprofessional and criminal. In the next few months several medical students committed acts that breached professional conduct. As the associate dean, it was my responsibility to investigate these incidents that included interviews with the house-officer, medical students, affected patients and colleagues. One of the questions that intrigued me was why had the house-officer and students behaved in ways that their peers did not, and thus began my journey to seek answers. Naively, unconscious of my incompetence in research I attempted to address this question using methods I was familiar with: I rephrased the "why?" question into "how many young doctors and medical students would behave in a similar manner under those circumstances?" and administered a survey to new house-officers. The findings from the survey led to a publication that generated a lively discussion in the medical and lay press but I knew I had not addressed the important "why?" question.

Learning how to answer the "why?" question was a major motivator for me to enrol in the EdD programme in 2008. I was very clear that the learning of medical professionalism by medical students would be my research interest. The first module in the EdD programme was professionalism in education. Compared to the teaching profession, I was appreciative that the medical profession has a longer and richer history of grappling with complex professionalism issues that challenge doctors and the society that we serve. The reading material for the first module made me realised that the authors had assumptions and orientation that were radically different from mine but I was at a loss to name those differences.

It was during the Educational Research I (quantitative methods) module that I became conscious of my incompetence in research. This awakening to my ignorance was precipitated by two events. Firstly, as we examined quantitative methods, I became aware that my knowledge and skills in its use was superficial, that I had been unaware and unquestioning of its limitations. Secondly, after reviewing my assignment on the proposed use of mixed methods to study the learning of medical professionalism, my course instructor Dr YJ Lee commented that he "would have preferred greater elaboration on the meta-theory behind the research methods: what are the conceptual issues when we survey or interview people about this sensitive topic?" I appreciated that he was asking a very important question but I was still clueless as to how to search for an answer.

When we studied ontology, epistemology, paradigms and qualitative methods in the Educational Research II module, I finally began to understand how I could search for an answer to Dr Lee's question. My knowledge and skills in research was slowly moving to conscious competence when I realised that I had unexamined assumptions and had been uncritical of my understanding of the first two components of research design i.e. worldviews and inquiry strategies. I became aware that I had fitted the research problem into the method rather than selecting the method to answer my research question. Like most doctors, my previous research training centred on hypothesis-generation, predictions, generalizations and emphasis on numerical analyses, which I learnt from Educational Research II, was usually founded on a paradigm of post-positivism. Further unpacking of my mind revealed that beyond research methods, my inquiry into and view of learning and professionalism were also built on unexamined paradigmatic assumptions of post-positivism and objectivism. I had assumed that medical professionalism and the learning thereof were objective realities, and the learning of professionalism could be measured and be equated to demonstration of professionalism. I was working on the hypothesis that failure to demonstrate professionalism was the same as failure to learn professionalism: I could only cringe at such audacity and laugh at myself on reflection.

I struggled at that stage because I had to move out of my comfort zone and recognise that alternative worldviews exist, that post-positivism was an inappropriate worldview assumption for medical professionalism, and quantitative methods alone were not suitable to study such a matter. The next difficulty was searching for alternatives and deliberately adopting an ontological perspective that would be appropriate for my research. Fortunately our class discussions in Educational Research II and some publications in the medical press helped me to grasp that constructivism was a more appropriate worldview on which to base my study of professionalism and its learning by medical students. Adopting constructivism as the preferred ontological perspective prompted me to review my interview notes with the guilty house-officer and medical students. I realized that their stories resonated strongly of constructivism, of learning as a social process, of actively constructing the meaning of professionalism as they interacted with patients, peers and senior colleagues and experienced examples of professionalism at its best and worst. The interview notes

contrasted sharply with the final reports submitted by me to my institution and the university. While the interview notes were personal, filled with emotions and reflection, the reports were factual, objective and devoid of reflection and personal meaning which prompted me to ask if I had represented the house-officer and students fairly and presented their stories adequately in those reports?

The need to examine my worldview assumptions also brought out the tension inherent in the roles embedded in that of a scholar-researcher versus a practitioner. The world of clinical medicine where I am a senior doctor-practitioner has strong orientation towards post-positivism and objectivism as evidenced by the policies, protocols, procedures and practices of my institution. On the other hand, in my new role as scholar-researcher in the field of medical education, I need to interpret the values, views, beliefs and attitudes of my students and colleagues through an ontological perspective of constructivism. Becoming a scholarly practitioner therefore meant that I am continuously traversing and negotiating between these two different worldview assumptions in my clinical work and education research – a complex task that challenges me and yet allows me to mature as a researcher.

Another challenge that I faced but did not expect was academic writing. Writing in medical practice and research is often reductionistic, whereby students and young doctors learn and hope to master the art of drilling down large chunks of information into a succinct summary and presenting it as such. Reflective writing as demonstrated in this essay would be considered meandering and frowned upon. Just as I had to examine my worldview assumptions and strategies for inquiry, I had to assess my ability to write academically. The writing required for this course demands more than what is routine in my work or acceptable in medical research. I had to unlearn my previous style of writing and instead learn academic writing that would be acceptable to readers who did not share any common mental model with me. Academic writing is a key means of communication and hence, inability to write academically is tantamount to inability to communicate clearly with readers. This means that even if my research idea is interesting and findings are informative, I will fail to communicate with my readers, and therefore fail to share and expand knowledge. Hence, painful as it is to unlearn a writing style that has taken me twenty years to master, I am determined to adapt so that readers in education will understand my work.

Designing and completing my Institution Focused Study on medical professionalism was hard work but relatively painless once I overcame the above struggles. I abandoned my initial idea of examining professionalism more deeply for my thesis in 2012 because of two incidents. I was invited to speak to the leadership team of a soon-to-be-built hospital and they wanted to know, “how did TTSH build its teaching culture?” The same question was asked soon after by a group of international medical educators. The answer I gave was too simplistic for what must have been a complex process – and I decided that this would be the research focus for my final thesis.

An unexpected life-changing event in my personal life forced a hiatus in my thesis journey. When I returned to the project 18 months later, I was glad that the topic was one

that I cared about deeply and the answers were important to TTSH and me – these prevented me from quitting. To study the teaching culture I decided to use an ethnographic approach – an approach that was completely new to me. It was enriching for me to read about the approach and to meet with a researcher familiar with ethnographic method to get practical tips. The actual conduct of the project using ethnographic method was enlightening academically and personally for the heart-warming and fascinating findings from interviews, archived documents, observations etc. Every step in the thesis journey was twice the hard work for Institution Focused Study but had helped me to mature as a researcher. I was grateful that from the International Education module, concepts of contestation, legitimacy, representation, values, cultural and collective identity formation have enlarged my vocabulary in reporting and discussing my findings. I was grateful to “discover” complexity theory and social worlds theory because the data finally had a coherent framework from which to hang. I could remember the excitement and awe tinged with humility when I wrote the Discussion and Conclusion chapter, knowing that this would be the crowning glory befitting the project and thesis.

In conclusion, the EdD programme has wrought in me a new consciousness of what it means to be a scholarly practitioner, enriched me with new knowledge of research fundamentals and equipped me with new research skills. I want to put on record my appreciation for the goodwill and kindness shown to me by my colleagues and my supervisors. Completing the Institution Focused Study and final thesis has been exciting and yet humbling because I have stood on the shoulders of giants.

(Word count = 1803)

Doctorate in Education (Dual Award) Viva Voce

The Impact on Tan Tock Seng Hospital's Teaching Culture of Transforming into an Academic Health Centre

Kum-Ying Tham

21 June 2016

Appendix: These are the slides presented during viva voce on 21 June 2016 at IOE, London

Contents

Contribution to the Field

- Boundary Worker: an accessible and intuitive description that resonates
- "Opening, contesting/negotiating and closing boundaries"

Chreim, S., Langley, A., Comeau-Vallée, M., Huq, J-L. and Reay, T. (2013). Leadership as boundary work in healthcare teams. *Leadership,* 9(2), 201–228.

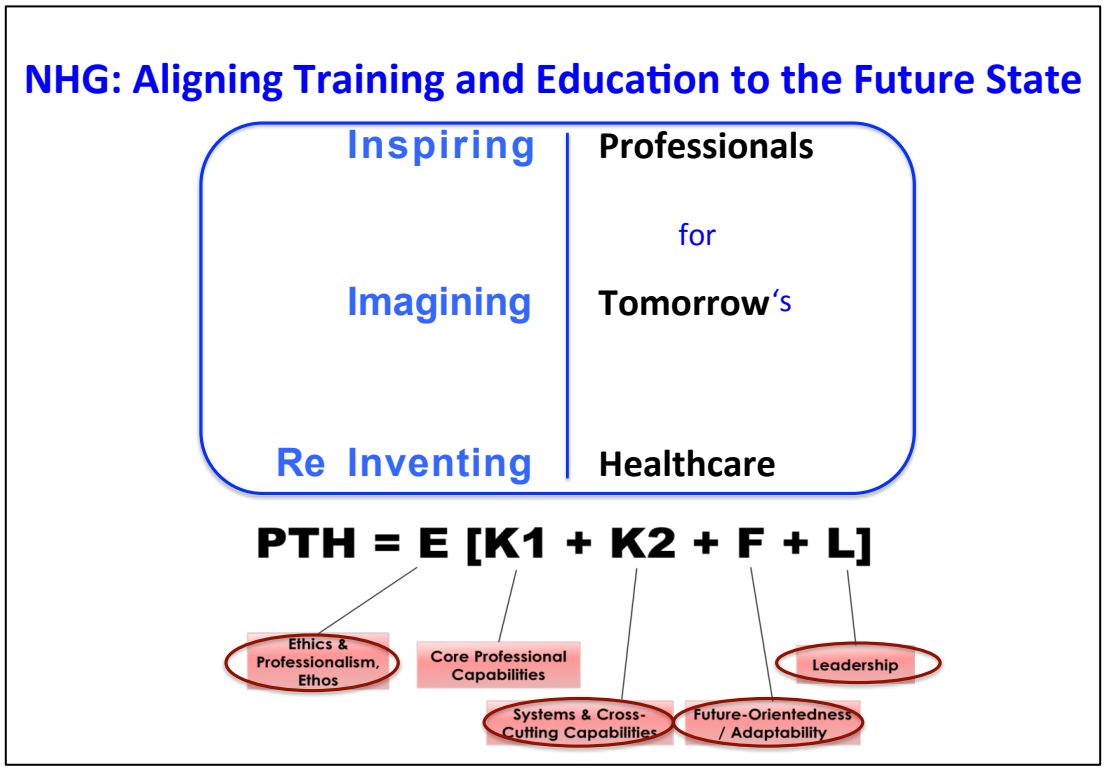
Within Tan Tock Seng Hospital (TTSH) and the National Healthcare Group (NHG), the concept of Boundary Worker resonated with my colleagues when I shared with them about social worlds theory.

They found the term accessible and intuitive and easily applied to some work situations.

The article by Dr Chreim et al that described "opening, contesting/negotiating, closing boundaries" by leaders of interprofessional teams triggered interesting conversations among my colleagues because of its immediate applicability to many of us.

While the term "boundary worker" was accepted easily, my colleagues found the idea that social worlds theory is a conflict theory more difficult to accept. They contend that "We are not in conflict. We are just different."

This statement is opens up an interesting line of conversation that is worthy of exploration in future.



This is the first of two exciting developments within NHG-TTSH.

Patients who are admitted to TTSH have an average age 10 years older than patients in other public hospitals in Singapore. The population that NHG and TTSH take care of lives in some of the oldest and densest housing estates. This translates into heavy workload and complex case mix.

The imperative to ensure that the education and training of healthcare professionals is integrated and matched to the above needs is urgent.

The NHG-TTSH educator group undertook a review in 2014 to reframe our understanding and strategy to map what the professionals for tomorrow's healthcare (PTH) will be.

We chose Professionals for Tomorrow's Healthcare to represent not just the people directly involved in patient care but also colleagues who work in support areas (e.g. Finance), "backrooms" (biomedical engineers) etc. who are part of the healthcare workforce.

Adapting from the work of Barber, Donnelly and Rizvi (2012), we crafted the formula that is applicable in a wide variety of contexts and by many different groups:

The Professionals for Tomorrow's Healthcare = E [K1 + K2 +F + L] where

K1 = Core professional capabilities plus

K2 = Systems and cross-cutting capabilities plus

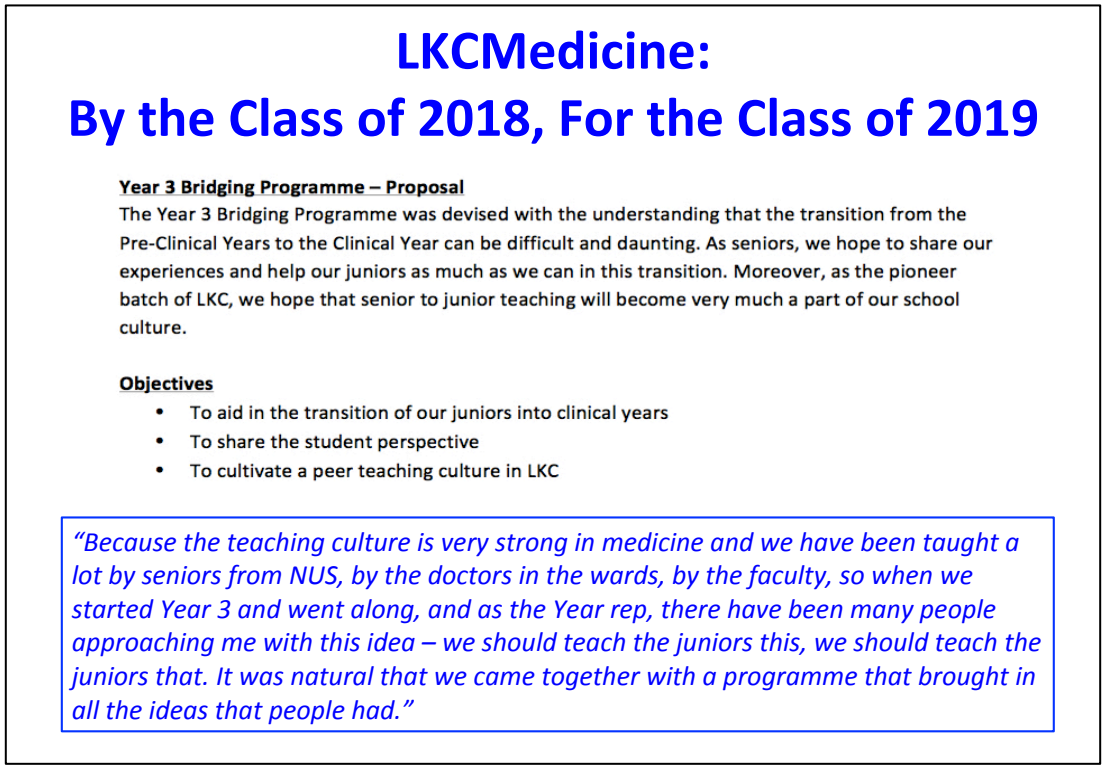
F = Future-orientedness and adaptability plus

L = Leadership, and

E = Ethics, professionalism and public service ethos as the multiplier of the above. This is important because if E = 0, then K1, K2, F and L will be 0.

During the sharing of this formula with various colleagues (top management, Human Resource team, educators from other countries etc.), it became a border object: everyone

understood its essence but the detailed interpretation was appropriated by that group to suit its context. This formula led to many exciting conversations within TTSH as we work towards Vision 2020.



The second development was an announcement in early June 2016 by the inaugural class of 2018 of LKCMedicine: at the start of the new academic year in August 2016, they will conduct a Bridging Programme for the class of 2019, to help them transition into learning in a clinical setting in the hospital. This was initiated and planned entirely by the students, which was very encouraging and heart warming for many of the clinical faculty and tutors including me.

I had the opportunity to interview two of the lead students and asked for their reason in initiating such a programme. The reply from JW, the class representative is reproduced in the slide above in italics.

What was even more significant was that the TTSH teaching culture is spreading beyond TTSH into LKCMedicine, translated thus by the class of 2018. I view this as a fluctuation in our system that has the potential to precipitate the emergence of a new order: the crossing of border and embedment of the teaching culture from TTSH into LKCMedicine.

Limitations

- The learners' voice is missing
- The ground level clinicians' voice is missing

The two major limitations in my study were the missing voices of learners and ground level clinicians.

At an early stage I had plans to include interviews with them to gather data. However discussion with some peers convinced me that given the huge amount of data I would be collecting from the other interviewees, from observations and archived documents, I would need to prioritise whose voice would be represented.

In short, because of the word limit constraint, I made the decision to not include the voices of learners and ground level clinicians in the data collection process. Fortunately, all is not lost. The learners' voice comes through a little in the student feedback that is discussed in my thesis.

The ground level clinicians' voice is captured in the Results section where their concerns are recorded.