BIOMEDICAL SCIENCE DISCOURSE AND DENTISTS' ORAL HEALTH PROMOTION CONCEPTS: A CASE STUDY IN CHIANG MAI

SONGVUTH TUONGRATANAPHAN

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…….
Mr. Songvuth Tuongratanaphan
Candidate

…….
Assoc. Prof. Luechai Sringernyuang,
Ph.D. (Medical Anthropology)
Major-Advisor

…….
Assoc.Prof. Pimpawan Boonmongkon,
Ph.D. (Medical Anthropology)
Co-Advisor

…….
Mr. Arayan Trangarn,
D.Sc. (Health Policy and Management)
Co-Advisor

…….
Assoc. Prof. Rassmidara Hoonsawat,
Ph.D.
Dean
Faculty of Graduate Studies

…….
Mr. Arayan Trangarn,
D.Sc. (Health Policy and Management)
Chairman
Doctor of Philosophy Programme in
Medical and Health Social Sciences
Faculty of Social Sciences and Humanities

Thesis
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on
May 19, 2004

…….
Mr. Songvuth Tuongratanaphan
Candidate

…….
Assoc.Prof. Luechai Sringernyuang,
Ph.D. (Medical Anthropology)
Chair

……
Assist.Prof. Supreda Adulyanon
Ph.D (Dental Public Health)
Member

…….
Assoc.Prof. Pimpawan Boonmongkon,
Ph.D. (Medical Anthropology).
Member

…….
Mr. Arayan Trangarn
D.Sc. (Health Policy and Management)
Member

…….
Assist. Prof. Tavivat Puntarigvivat,
Ph.D. (Religion and Society)
Member

……
Assoc. Prof. Rassmidara Hoonsawat,
Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

…….
Assoc. Prof. Suree Kanjanawong,
Ph.D. (Health Psychology)
Dean
Faculty of Social Sciences and Humanities
Mahidol University

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Songvuth Tuongratanaphan

BIOMEDICAL SCIENCE DISCOURSE AND DENTISTS' CONCEPT ON ORAL HEALTH PROMOTION: CASE IN CHIANG MAI

SONGVUTH TUONGRATANAPHAN 4137868 SHMS/D

Ph.D. (MEDICAL AND HEALTH SOCIAL SCIENCES)

THESIS ADVISORS: LUECHAI SRIGERNYUANG, Ph.D. (MEDICAL ANTHROPOLOGY), PIMPAWAN BOONMONGKON, Ph.D. (MEDICAL ANTHROPOLOGY), ARAYAN TRANGARN, Ph.D. (HEALTH POLICY AND MANAGEMENT)

ABSTRACT

The purpose of the thesis is to study dentists' concept on oral health promotion in Chiang Mai based on biomedical science discourse. The study was conducted by means of dentists' performance of oral health promotion in the health service system in Chiang Mai as well as the learning process of dental students in the Faculty of Dentistry, Chiang Mai University. The methods for data collection were in-depth interviews and observations of a sample comprising 21 dentists and 16 dental students.

It was found that dentists' concept on oral health promotion was based on biomedical science discourse which focused on disease as well as high risk groups. Dentists were accustomed to explaining the etiology of oral disease within the epidemiological framework and the field of biochemistry. This discourse was adjusted and adapted to the process of dental education as well as the oral health system. The activities of oral health promotion, such as oral check-ups, dental health education and oral health surveillance in dental health service units were discursive practices of biomedical science discourse. This discourse was related to the biomedical cultural system, dental professions and public health bureaucratic cultural system.

The finding of this study suggests that both dental educational system and health service system should be incorporated to emphasize health-oriented concepts rather than disease-oriented ones, so that patients may be treated holistically.

KEY WORDS: ORAL HEALTH PROMOTION/ DENTIST/
BIOMEDICAL SCIENCE DISCOURSE

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วาทกรรมการแพทย์แบบวิทยาศาสตร์กับแนวคิดการส่งเสริมสุขภาพช่องปากของทันตแพทย์ กรณีศึกษาจังหวัดเชียงใหม่ (BIOMEDICAL SCIENCE DISCOURSE AND DENTISTS' CONCEPT ON ORAL HEALTH PROMOTION: CASE IN CHIANG MAI)

ทรงวุฒิ ตวงรัตนพันธ์ 4137868 SHMS/D

ปร.ด. (สังคมศาสตร์การแพทย์และสาธารณสุข)

คณะกรรมการควบคุมวิทยานิพนธ์: ลือชัย ศรีเงินยวง, Ph. D. (Medical Anthropology), พิมพวัลย์ บุญมงคล, Ph.D.(Medical Anthropology), อารยัน ตระหง่าน (Health Policy and Management)

บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาวาทกรรมการแพทย์แบบวิทยาศาสตร์กับแนวคิดการส่งเสริมสุขภาพช่องปากของทันตแพทย์ โดยผ่านการดำเนินสุขภาพช่องปากของทันตแพทย์ในระบบบริการสุขภาพของจังหวัดเชียงใหม่และผ่านกระบวนการศึกษาของนักศึกษาทันตแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่ ผู้วิจัยใช้วิธีการเก็บข้อมูลที่หลากหลายได้แก่ การสัมภาษณ์เชิงลึก การสังเกตแบบไม่มีส่วนร่วมเป็นต้น ระยะเวลาเก็บข้อมูลตั้งแต่เดือนเมษายน – กันยายน 2546 ผู้ให้ข้อมูลหลักคือทันตแพทย์ในสถานบริการภาครัฐและเอกชนและนักศึกษาทันตแพทย์ การวิเคราะห์ข้อมูลโดยการแยกแยะข้อมูล การตีความและการให้ความหมายตามประเด็นต่างๆ

ผลการศึกษาพบว่าทันตแพทย์ไม่สามารถจำแนกความแตกต่างระหว่างแนวคิดการส่งเสริมสุขภาพและการป้องกันโรค แนวคิดการส่งเสริมสุขภาพของทันตแพทย์ถูกจัดวางอยู่บนพื้นฐานของวาทกรรมการแพทย์แบบวิทยาศาสตร์ที่มุ่งเน้นที่โรคและกลุ่มเป้าหมายเสี่ยง ทันตแพทย์คุ้นเคยกับการอธิบายโรคในช่องปากภายใต้กลไกทางระบาดวิทยาและชีวเคมี วาทกรรมการแพทย์แบบวิทยาศาสตร์ ที่ล้อมกรอบแนวคิดการส่งเสริมสุขภาพช่องปากของทันตแพทย์ถูกสร้างขึ้นและผลิตซ้ำภายในระบบการศึกษาทันตแพทยศาสตร์และในระบบบริการสุขภาพของจังหวัดเชียงใหม่ แนวคิดการส่งเสริมสุขภาพช่องปากของทันตแพทย์เกี่ยวพันกับระบบวัฒนธรรมชีวการแพทย์ วิชาชีพทันตแพทย์และระบบราชการสาธารณสุข การศึกษานี้มีข้อเสนอแนะว่า จำเป็นที่ต้องปฏิรูปแนวคิดด้านสุขภาพทั้งในระบบการศึกษาทันตแพทยศาสตร์และในระบบบริการสุขภาพ โดยมุ่งเน้นที่สุขภาพมากกว่าโรคในช่องปาก และให้ความสำคัญกับผู้ป่วยเป็นศูนย์กลางแทนการมุ่งเฉพาะฟันของแต่ละคน

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CHAPTER 1
INTRODUCTION

1.1 Background of the study

During the last two decades, there were at least 4 changes in dental profession and dental education: (Kanchanakamol, U. in Chaiprasit, S. 2001)

Firstly, the strategies of dental public health were added to the Fourth National Social and Economic Development Plan: NSDP (1977-1981) and have been continued until present.

Secondly, the curriculum of dental education in every dental school were shifted from the curative strategies for individuals to the strengthened strategies of disease prevention and health promotion. Moreover, social science was added to the curriculum of community dentistry.

Thirdly, dental health services which formerly clustered in private sections especially in Bangkok and big provinces have been distributed to remote areas through compulsory dentists.

Fourthly, since 1997, there have been a lot of changes in Thailand: the economic crisis, the reform of the governmental system, the educational reform and the reform of health system. In addition, a new concept of health promotion was accepted. All of these led to some changes in the concept and strategy of the national dental public health developmental plan.

The first national dental public health program in the Fourth National Social and Economic Development Plan was directed to decrease oral disease prevalence from 80 to 40 percent through disease prevention and promotion strategies in addition to treatment alone. In the beginning of the plan, the national oral health survey was first conducted in 1982. Other strategies were the incremental dental health services in primary schools, dental health surveillance and promotion programs for primary-school children. The strategy of primary dental health care which was first

implemented by means of training primary health care personal in dental health service units. It was the strategy in the health developmental plan in the Fifth National Social an Economic Development Plan (1982-1986)

Moreover, in the Sixth National Social and Economic Development Plan (1987-1986), the policy of dental public health still had an emphasis on diseases prevention and oral health promotion according to the strategy of primary health care. Dental surveillance programs were extended to pre-school children. Toothbrushes were distributed to children in well baby clinics. The third national oral health survey was conducted in 1989.The average of DMFT of 12-year-old children was still at 1.5. Periodontal health was still in unsatisfactory level and school children brushed their teeth after lunch only 36 percent.

As for the Seventh National Social and Economic Development Plan (1992-1996), dental public health plan still had an emphasis on oral health promotion. It was found in the fourth national oral health survey in 1994 that the average of DMFT of 12-year-old children was still 1.55, but some severity was found in pre-school children whose caries rate was 86 percent.

According to the Eighth National Social and Economic Development Plan (1997-2001), ten strategies of dental public health plan was set to accomplish the goal. The main strategies were to develop health promotion, disease control pattern and oral health behavior by means of modifying oral health education and increasing communities' abilities for their oral self care.

In conclusion, from the Fourth to the Eighth National Social and Economic Development Plan, the national dental public health plan had an emphasis on health promotion and disease prevention. Oral disease of Thai people found in the fifth national oral health survey (2000) did not decrease although there were dental personnel working in community hospitals and health centers with the coverage rate of 80 percent. (Viboonpholprasert,S. 1999)

Previously, dental education was included in medical education of Thailand. Later, dental schools were separated independently. It resulted in the perspective of oral health that was separated from systematic health as a whole. Dental students could not integrate oral health to systematic health. Holistic health care in dentists' perspective seemed to be constricted. Dental education had lack of interdisciplinary

courses. In addition, dental professions were also divided into 10 branches: dental diagnosis and pathology, oral surgery, operative dentistry, periodontics, endodontics, proshtodontics, orthodontics, pedodontics, general dentistry and dental public health.

According to the former concept that dental profession was independent, dental profession was more isolated and was not in concerning with other professions. (Dental professional development network, 2002) This paradigm totally came from the cultivation of dental education. Knowledge which gained during education led to see how dentists practiced in routine life.

World Health Organization indicated that the curriculums of health professions in the world were not in accordance with the communities' need. Most of the health professions did not consider health in broader point of view but only the state without diseases. Complexion of medical science and clinical practices blinded them from understanding humans' life, social, culture, economic and political policy that influenced them. Moreover, dental schools were also separated and not concerned as a part of general health service system of the country.

The first Faculty of Dentistry in Thailand was established in 1940 to provide dentists with practical skills of basic dental services such as: extraction, filling and tooth replacement. The main activities of dental healthy public policy from the fourth to the sixth National Socioeconomic Developmental Plan (NSDP) were dental services. Activities of health promotion and disease prevention were implemented to decrease the disease rate. These all emphasized the concept of disease-oriented strategy. The total number of dental faculties until present is 8 faculties and all emphasize curative and rehabilitative abilities of the graduates.(Tuongratanaphan S, 1999).

However, every dental faculty has modified the dental curriculums. The curriculums were changed to emphasize more health promotion and disease prevention in community rather than curative abilities alone. (Faculty of Dentistry, Chiang Mai University, 1987). This change was in accordance with the international dentistry which shifted to community-based health promotion. (Slavkin, 1997). The number of credits for community dentistry was increased from 8 to 19-22 credits to provide health promotion and disease prevention for both individuals and communities. (Faculty of Dentistry, Chiang Mai University, 1987). Although the

dental curriculums after 1987 were changed to decrease the importance of operation, the oral health promotion was still not an obvious component of the curriculums. (Adulyanon S, 2001)

A survey of 57 deans' attitudes towards dental curriculums in the United States revealed that three most important items were health promotion and disease prevention, primary health care and inter-relationship between patients and providers. (Graber, 1998). There was too mach content in the dental curriculums, and this was the main obstacle to modify the curriculums.

Academic development of health promotion in the dental curriculums was emphasized only as a part of the community dentistry and dental prevention courses. The development of the curriculums was not different from the health paradigm of western medicine which had main emphasis on curative perspective. The shift of emphasis has been heralded since the first WHO International Conference on Health Promotion was held in Ottawa, Canada in 1986. The Ottawa Charter for Health Promotion was regarded as the formal beginning of the new public health movement. The approach to health promotion has been adopted in Thailand's public health strategy since the health system research institute held a conference on "Health Promotion: new contemporary role" in 1998. Later, there was a movement of health-care reform and dental education in this area (Adulyanon S, 2001)

Dental graduates spent the greatest proportion of working time on curative basis rather than prevention and promotion. This evidence reflected the dental educational system. (Viboonpholprasert S, 1999). Every dental school realized the need for curriculum improvement. Health promotion and disease prevention should be more emphasized. Although the Department of Community Dentistry had improved the academic system for a new paradigm of promotion and prevention both in didactic courses and field practices, the graduates still focused principally on operation. The structure of science discourse which enclosed the dental education, such as dental science discourse and discursive practice should be reconsidered.

The government has reformed the health system and the Universal Health Care Coverage Project (the UC project) was considered as the main policies. The Universal Health Care Coverage Project (the UC project) was first provided in 6 pilot provinces on April 1, 2001. Within one year, the UC project was provided throughout the

country. The main strategy of the UC project was to promote health rather than to repair health. The main activities of the UC project on oral health were oral check-up, oral health education and advice, oral disease screening, fluoride treatment, pit and fissure sealant. (Public Health Ministry, 2002)

Since the UC project policy emphasized the health promotion, individuals were promoted to increase their abilities of controlling and developing their own health. Health promotion strategies were to increase abilities to manage health environment and develop self-care skills. This was the turning point from disease-oriented to health oriented paradigm and was in accordance with the health policy in the Ninth National Social and Economic Development Plan (2002-2006).

It was found in a study of health promotion and oral prevention situation in the UC project that there was an increasing rate of 15 percent in dental treatment whereas the rate of promotion and prevention tended to decrease. (Tuongratanaphan S, 2003). This was consistent with a study of Arunpraphan et al (2002) in 6 pilot provinces of the UC project. The situation of the UC project in private hospitals was found that only 1.8 percent of pit and fissure sealant which was dental prevention was provided. (Vivatkunupakan V, 2002)

Although emphasis on oral health promotion and disease prevention was continued from the Fourth to the Ninth National Social and Economic Development Plan (NSDP) including the curriculum improvement of dental schools, health revolution and dental public health plan in the UC project accepted to change the concept to health promotion. The rate of caries still maintained and dentists still had an emphasis on curative services. It was necessary to reconsider health promotion and disease prevention concept in the dental health education and health-service system which caused the health promotion to miss the goal of health. The concept of health promotion is a basic framework for how dentists think about the dental health and environment surrounding. If dental health is considered a balance in association with the environment, the way of dental health care would give an emphasis on living in accordance with social and ecological system. But if dental health is focused only oral diseases, the way of dental care would be curative oriented. So, it is necessary to understand the discourse and practices which is settle down in the oral health concept.

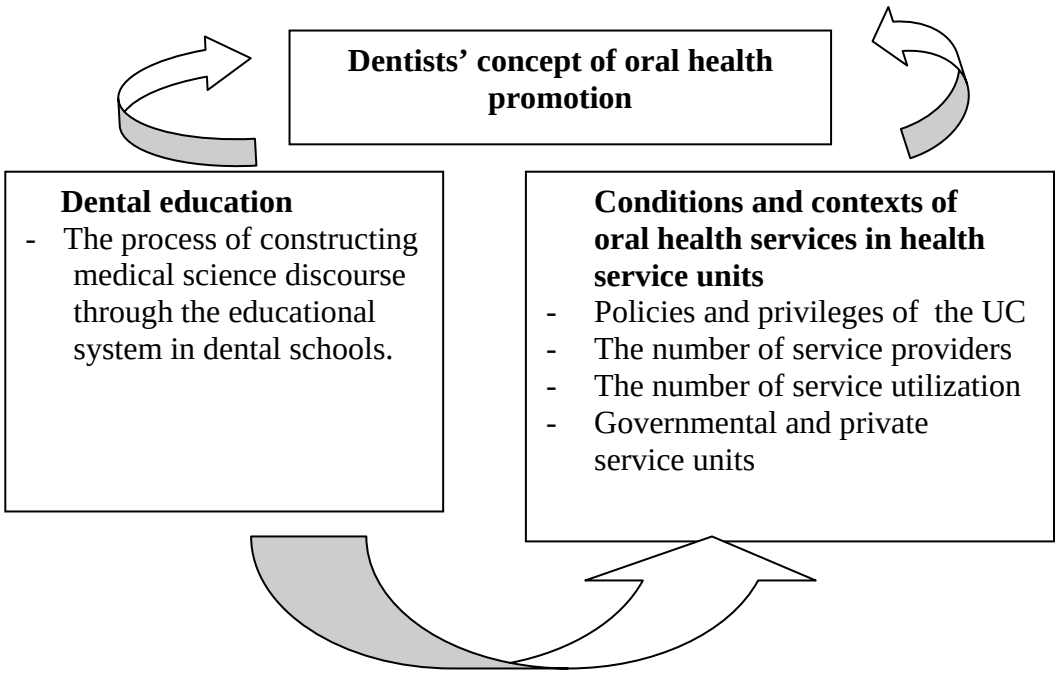
1.2 Research questions

1. How is the dentists' concept of health promotion in Chiang Mai?
2. What conditions and contexts of health service system in Chiang Mai lead dentists to focus on curative concept rather than promotive concept?
3. How does medical science discourse in dental education influence dentists' concept on oral health promotion and lead dentists to emphasize treatment of diseases rather than health promotion?

1.3 Objectives

1. To study dentists' concepts of oral health promotion in Chiang Mai.
2. To study conditions and contexts of health service system in Chiang Mai which influence dentists to emphasize disease treatment rather than oral health promotion.
3. To study the influence of medical science discourse on dentists' concept of oral health promotion through the dental education in Chiang Mai University

1.4 Conceptual framework



CHAPTER 2
LITERATURE REVIEW

The purpose of this chapter is to review articles and researches concerned in this study. The study is basically aimed at understanding and examining conceptual frameworks and theories concerning paradigms of health and medicine as well as concepts of health promotion, disease prevention, discourses, authority and knowledge and the construction of cultural capital. The evolution of oral public health and the situation of oral health promotion in Thailand were also reviewed.

2.1 The evolution of health service system in Thailand

Phase I (Before National Economic and Social Development Plan:NESDP)

In the past, all of the dental providers in Thailand were Chinese and Srilankian who moved and settled down in this country. During the reign of King Ratanakosin III, they were mostly trained by their ancestors or their employers and became more skilled by practicing in their own dental clinics. Most of the well-known dental works at that time were teeth extraction, smoothing and leveling teeth edge, and covering teeth with gold. In 1891, George B. McFarland, an American dentist, worked as a government official at Siriraj hospital and started his own dental clinic at Phraya Sri which was regarded to be the first private dental clinic in Thailand. (Yuktanan I, 1970).

After that, more foreign dentists who graduated from their countries, such as Danish, Chinese, and Japanese moved into Thailand. These dentists trained their assistants and then their assistants started their dental careers by means of applying their self-experiences. The number of dental service providers was gradually increasing in Bangkok and in other big provinces.

However, the amount of dental providers was still inadequate. In 1972, the Thai government established a dental school under the army medical school with 2-year dental curriculum. The school was closed after the first group of students had graduated but still maintained the training for sergeants as dental assistants.

In 1923, an act of medical legislation was laid down and was later changed to the statute of medical licenses in 1936 in order to protect dental patients. Registrations for licenses to provide dental services were divided into two levels. The first-level licenses were supplied for graduates in an academic degree of dentistry. Since there were no dental schools at that time in Thailand, foreign dentists and Thai dentists who graduated from foreign countries could mostly register for the first-level licenses. The second-level licenses were supplied for sergeants or dental providers who were trained but have never studied in any dental schools. (Sukavatin T, 1986)

Because of the shortage of both first-and second-level dental technicians, the first dental school was established at Chulalongkorn University in 1940. Then Ministry of Public Health was established in 1942 and was responsible for training the second-level dentists with 2-year curriculum. After that it was changed to the dental hygienist curriculum in 1952 and was preceded by Chulalongkorn University. The dental schools at Mahidol University and Chiang Mai University were established in 1968 and 1973, respectively. Then, the dental hygienist curriculum was closed in 1973.

In 1956, Ministry of Public Health established hospitals in every province. The dental health services were spread from Bangkok and big provinces to remote areas. In 1964, the numbers of dentists and dental hygienists working in provincial hospitals were 32 and 55, respectively. Besides, evidences of oral health services were not found in districts during this time. (Viboonpholprasert S. 1999) In the beginning of oral health services in Thailand, therapeutic dental services were emphasized. The academic system in the dental schools was conformed to Thai society. The graduates were trained for basic dental service skills, such as extracting, filling and replacing teeth which met basic requirement of Thai people.

Phase II (During the 1st -3rd NESDP: 1961-1976)

In 1960, the first oral health survey was conducted by World Health Organization (The International Center for Oral Health, 1986). It was found in the survey that the rate of caries was low but the rate of gingivitis and periodontal diseases were high. Besides, there was a shortage of dental health personnel working in districts and there were no organizations for oral public health administration. In 1968, Ministry of Public Health started a 2-year dental nursing curriculum at Public Health College in Chonburi. Graduated dental nurses were expected to work at health centers and provided dental services to children who were less than 14 years old. These were the obvious dental services providing in districts of provinces in Thailand. Although two more Faculties of Dentistry were established at Mahidol University and Chiang Mai University in 1968 and 1973, respectively, most of the graduates preferred working in Bangkok and big provinces. In 1976, only 9 dentists worked in districts. Therefore, dental nurses had to be responsible for dental services in districts. This caused a change of the role of dental nurses. It was changed from the role of health promotion and disease prevention for children especially in primary schools to the role of providing dental services to all people. (Viboonpholprasert S, 1999). However, in 1975, health centers were upgraded to be hospitals of districts and were later changed to community hospitals in 1982. Moreover, dental public health units were established in hospitals of districts. Dental public health services were spread throughout the country according to the policy of the government to increase the amount of district hospitals.

Phase III (During the 4th -6th NESDP: 1977-1991)

The public health developmental plan was first found obvious in the 4th NSDP (1977-1991). The oral public health project was also a part of this plan. The oral health project placed emphasis on health promotion and disease prevention. The caries prevention strategy was first introduced in this plan, for instance: fluoride program for primary school children. The second dental nursing school was established in Khon-Kaen in 1979 to increase the number of dental nurses.

During the 4th NSDP, Thailand was influenced by Alma-Atta declaration (1977). "Health for all" and "primary health care" was the goal of this declaration. In 1979, the dental public health was included as a part of the primary health care, but the dental services especially in districts were still inadequate. The board of National Dental Health Committee proposed a compulsory dental project to resolve the dentist-distribution problem. Graduated dentists had to work in the governmental sections especially in community hospitals for at least 3 years after graduation. This project started in 1989. Consequently, the number of dentists in districts was increased dramatically. (Viboonpholprasert S, 1999)

As for the 5th NSDP (1982-1986), an obvious dental public health plan was held. Dental health activities were guided by the primary health care. The primary dental health activities included educating health volunteers from villages about dental health care, establishing a tooth-brush-and-tooth-paste foundation in villages, training health care personnel to be able to perform dental check-ups and relieve emergency dental problems. Dental health services in villages and districts were obviously held during this phase. In addition, there were the dental health care in urban areas as well as the dental care for primary school children.

The 6th NSDP (1986-1991) had an emphasis on the oral health promotion but the oral health care project in primary schools was changed to dental surveillance and oral health promotion. Applying the primary health care strategy, teachers were trained to check up students' oral health and analyze students' oral health problems. (Dental Public Health Division, Ministry of Public Health, unidentified published year)

During this period, there were two more Faculties of Dentistry established: in Khon Kaen University (1979) and Songklanakarin University (1982). According to the increasing number of graduated dentists from 220 to 360 per year, there should have been 8,000 dentists in Thailand by the year 2000 and the rate of a dentist per population should become 1: 7,000 (Faculty of Dentistry, Chiang Mai university, 1994)

In summary, although the 4th - 6th NSDP had an emphasis on the oral health promotion and the disease prevention, most of the activities were therapeutics. The dental health care was spread from a district to other districts by applying the primary

health care strategy. The health volunteers from villages, health-center personnel and teachers were trained to perform the oral health care according to the concept of the primary health care, such as: community's participation, community's self care, appropriate technology and integrated health care. The problem of dentist distribution was resolved by forcing graduated dentists to work in community hospitals for at least 3 years.

Phase IV (The 7th NSDP 1992- present)

The dental public health plan in the 7th NSDP (1992-1996) is still focused on the oral health promotion and the disease prevention, but the first target group was changed from primary-school children to pre-school children. Since it was found in the oral health survey in 1989 that the caries rate of pre-school children was increasing, the oral health promotion activities were shifted to pregnant women, children in well baby clinics and pre-school centers. The primary school children were the second target group and the dental surveillance program was still continued. The pit and fissure sealant program was started in this phase. The oral health care activities in the 7th NSDP were continued to the 8th NSDP (Dental Public Health Division, MOPH, 1997).

Three Faculties of Dentistry were established in 3 universities: - Srinakarintarawirot University, Thamasat University and Naresuan University and four more dental nursing schools were also established. At present, there are a total of 8 Faculties of Dentistry with 360 graduates per year, four dental nursing schools, one dental technician school and one dental assistant school. The total number of dentists is 5,999; 51 percent of the dentists working in governmental sections and 49 percent working in private sections. In 1998 there were 788 dentists in community hospitals. The rate of a dentist per population in Bangkok was 1: 3,800 and in rural areas was 1: 52,206. (Tuongratanaphan S, 1999)

2.2 Health paradigm

The health paradigm is a basic model or framework for how a person thinks about life, sickness and the world. Based on different concepts or paradigms, people from different cultures recognize sickness differently and perform different health care. Ancient Chinese philosophers believed that all manifestations of reality are generated by the dynamic interplay between two polar forces which they called “Yin and Yang” (Stella YL Kwan and M Holwes, 1999). Rural Thai people believe that some sickness was caused by “ghosts”. As for the western medicine, illness is determined by microorganism or genetic determinism including the malfunctioning of the organ system. Also, illness is able to be eradicated by pills and surgery.

Paradigm is a word stemmed from “Para” which means “beside” and “digm” which means “examples”. “Paradigm” means a basic concept about the world which is the origin of thoughts. (Nakwattana W, 2002). Thomas Kuhn who was a historic scientist used the word “paradigm” to describe a change of concepts in the scientific field. His writing about “The structure of scientific revolutions” in the year 1962 was proposed that “the study process of scientists was based on common concepts within each branch. These concepts determined study direction and knowledge in that time period, until there was a new notion or new theory challenging. If new notion was more interesting, study direction would be changed. This was called “Paradigm shift.”

Almost every country in the world has basic framework about health management based on scientific paradigm. The present science was based on Newtonian physics. Biologic and biomedical process proceeded according to the same rules and was controlled by some determinants. Based on physical knowledge, chemical knowledge, biology and biomedicine could be consequently understood.

Newtonian physics which was a basic principle of classical science and health science was based on three concepts (Lipton B, 2000).

1. Materialism believes that human body is composed of matter and only matter controls the biologic process in the body.
2. Reductionism believes that human being is just a sophisticated machine and can be understood only by dividing them into smaller separated parts.

3. Determinism believes that every phenomenon has determinants such as drug in biomedical "Newtonian" view of health is a chemical agent applied in biologic process in order to cure disease. Dental technology such as fluoride application, bushing or chemical plaque control was based on Newtonian physics.

In fact, an old notion before scientific era said that the truth was more than what people could see or perceived with any sensory. (Visalo P, 1989). People in that period believed that body and mind are not separated and they had a holistic way of seeing things. Until the scientific culture of the sixteenth century replaced the old outlook, Galileo proved that knowledge should come from scientific process which could be measured and proved. (Juengsatiensap K, 2002) In the seventeenth century, Descartes proposed reduction concept which split body and mind apart. (Visalo P, 1989). Descartes said that human body resembled a machine which consisted of many independent parts. Human body could be understood without regarding to mind. Descartes said that the body was a machine which was constructed with nerve, muscles, blood and skin and body could go on working even without mind. (Foss and Rothenberg, 1988) Isaac Newton insisted on Descartes' words that human body resembled a machine and a patient resembled a clock with a defect on assembling process. He also considered a healthy person as a well-assembled clock. (Pasonatummo P. et al, 1999).

Western philosophy was influenced by Descartes' way of thinking. Reductionism and mechanism had great influence and was a basic concept of western medicine. It was believed that the study of body was less complex when mind was not considered. Biology which had physics and chemistry as basic principle influenced medical concept. So it was called "biomedicine". The concept that man worked as a machine led doctors to be interested in malfunctioning organ. (Pasonatummo P.1999, Visalo P 1989).

In 1920, the way of seeing the world in mechanistic approach and in reductionism approach came to the end. A new approach of seeing things was more holistic or more ecological. Physics has moved from Newtonian physics to quantum physics. As for the new concept, human body did not consist of matter but energy

which had a different pattern. Each energy pattern resulted in a different biological process.

Quantum physics replaced the old outlook. Materialism was replaced by energetic, reductionism was replaced by holism and determinism was replaced by uncertainty. According to the new paradigm, the study of health and life had to be concerned with not only biology, but also other things. Everything was interconnected in such a way that all environments were related with human and were the most important part of human. (Lipton, 2000)

Although the Newtonian physics model has shifted to the quantum physics, the health paradigm still attached to Newtonian science and reductionism. Then doctors were still interested in a specific part of the body (from organ to cells) to discover determinants. Mind and environments were not taken into consideration. It became a total biomedicine. (Visalo P,1989).

Lipton (2000) proposed the concept of “Biology of Belief” that biology of any living organisms is not determined by genes but by adapting the process of evolution with environments.

Visalo P (1989) proposed that the health paradigm determines health treatment tendency. If health is considered a balance in association with the environment, the way of health care would give an emphasis on living in accordance with social and ecological systems. But if health is considered a healthiness which disease is limited to physical abnormality, the health care would be aimed at a curative process. This concept of health leads doctors to emphasize disease therapy deeply. Also doctors would have the most important role in people’s health. People would believe that their health depends on medical intervention and doctors are responsible for their health.

In fact, not so many diseases which cause troubles need handling by doctors. Health responsibility should belong to each person. People and their societies should realize and be responsible for taking care of their own health. Applying this way, people will not require any help from doctors.

Besides, modern medicine has a great impact on doctor-patient relationships. Doctors have authority of curative process. Totally patients depend on doctor’s decision. Previously, all doctors had to work as government officials. In the past, government officials in Thailand had more authority than lay people. This might be a

leading factor for doctors to pass on this concept and relationship between government officials and other people to patients. (Aeungsriwong N., 2002).

At present, medicine in Thailand is focused on specialization and sub-specialization. The organ functioning system seems to be more comprehensive and should be treated more effectively. In fact, a manifestation of abnormality is a result of complex system of human body: not only biologic process but also psychological dimensions, social and cultural dimensions. According to this concept, doctors will not treat all patients. Each patient has to see many specialized doctors and if there is no good cooperation between each specialized doctor, the treatment will not be effective and maybe worse. (Thamapidok P. 1996)

“The human body is similar to a machine” is the concept that all illness including cultural, social, physical and emotional components can be reduced or explained by the biological problem. The body, the state of body and parts of the body became the focus for medical treatment. Doctors could not perceive illness as an imbalance of an integrated whole of individual. They gave their emphasis on only abnormal part of the body and neglected others. It was found that more than 75 percent of doctors were specialized. Their treatment was limited to specific age groups of patients, specific diseases and specific organs. (Pasunnatummo P, 1999).

In summary, the mechanical and reductionism paradigm affected health in two aspects (Ramvitayapong A, 2002)

1. Dehumanization: the meaning of life was reduced and “body” remained as the main part and mind was neglected. This paradigm affected obviously on health care especially in an aspect of dietary supplements.
2. Desocialization: the mechanical paradigm divided human being into different classes. Patients were separated from their family and community. Even therapeutic process was divided into different parts like divisions of labors.

2.3 New concept of health promotion

People's health is a result of several factors including social, politics and economic dimensions. It was found in many researches that people's health was influenced mostly by total ecology. Health behavior and health services had less influence and biologic and genetic factors had the least influence. (Tarlou and St. Peter, 2000). Mc Keown (1979) reported that factors which affected on disease depletion were environmental, economic and behavioral factors. Health service was not a factor which affected disease depletion. An international conference in 1978 attended by representatives from 134 nations was held by WHO and UNICEF. The outcome of the conference was the Declaration of Alma-Ata. It contained the blueprint for primary health care including the goal of "an acceptable level of health for all people around the world by the year 2000". This declaration revealed the importance of economic, social, educational and political dimension to achieve health. Primary health care strategy reflected the paradigm shifted from health as individual responsibility to communities' and societies' responsibilities as demonstrated in figure 1.

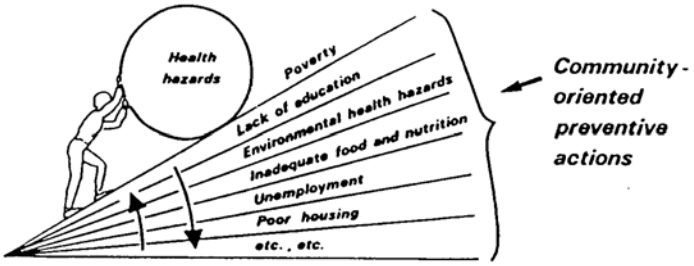


Figure 1: Comparing the complexity of health paradigm associated with social factors.

The first WHO International Conference on Health Promotion was held in Ottawa, Canada, in 1986. The outcome of this conference was the Ottawa Charter for Health Promotion which set out the action required to achieve "health for all" in 2000. The second WHO International Conference on Health Promotion was held in Adelaide, Australia, in 1988. Its theme was the public health policy. The third conference was held in Silkswan City, Sweden, on the topic of creating supportive environments. The fourth conference in the twenty-first century of health promotion

was held in Jarkata, Indonesia, in 1997. The fifth conference on health promotion was held in Maxico city, Maxico, in 2000. The last theme was “From the concept to practice”. (Termsirichaikul, 2002).

Bunton R. and McDonald G. (1992) proposed in his writing “Health Promotion: Discipline and Diversity” that health promotion itself grew out of the legacy of health education. In the nineteenth century, public health was developed and focused on environmental factors and social structure which affected people’s health. Later, there was a project of vaccine development and immunization in the twentieth century. The target for health development was shifted from environmental aspect to individual aspect and the role of health education was obvious according to the objective of changing health behaviors. Until mid-twentieth century, the concept of health promotion was shifted again: from modifying health behaviors to ecological and environmental aspect including social structure for health. Hence, the strategy of health education was modified to the strategy of health promotion.

The Ottawa Charter for Health Promotion

In 2000, WHO set up primary health care as a strategy of “health for all”. Several obstacles were found during the implementation of primary health care. In the earlier period, public health activities were focused on disease prevention. When health works were limited to the disease-oriented concept, the solution was mainly focused on medical services and experts. There were no opportunities for those who were not in the medical field to participate in the solution. In fact, “health” does not mean to minimize disease. WHO defined health as “a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity”.

A new movement of public health was based on health promotion. Its concept was to approach “health” strategy, not “disease”. Due to the health-oriented concept, everybody such as; non-public health personnel including other people could participate in health activities. This meant that governmental personnel’s role would be changed from the giver or the doer to the catalyst or the facilitator. This new concept of promotion required collaboration of any sections whose works effected on

health, such as: governmental sections, private institutions, groups of people. This period was called “Era of everyone’s role” (Kanchanakamol U, 1998)

Health promotion incorporated broader disease prevention. Health education was not a solely element of health promotion, but it also required structural changes in a number of levels to create environments which supported health. Social change, political process, individual skill development and actions of strengthened community are also important elements to achieve people’s health.

Definition of Ottawa Charter of Health Promotion

Health promotion is a process that contains the main objective to increase people’s control over their health and strengthen their health in order to have mental and social good health.

This definition focuses on the importance of people development and the role of health personnel which is changed to be stimulators, supporters and initiators. The important strategies in the new concept of health promotion consist of (Termsirikulchai L, 1998):

1. Advocating a trend for social action by means of informing people to realize a particular problem that influences health.
2. Enabling people to gain more control over their lives. People should have ability to consider and regulate environments which support health. It means that people should have self-efficacy to deal with illness and any factors which have a negative impact on health.
3. Mediating between groups of people, governmental and non-governmental sections or organizations to share opinions and interest in a particular issue.

Ottawa Charter stated that the above strategies for health promotion should lead to five significant activities: (Wass A, 1997)

1. **Building healthy public policy**: It is not health policy alone that influences health: all public policy must be examined about its impact on health, and when policies have a negative impact on health, they must be changed, for example if a state or local government has a policy of

allowing industries to be located near residential areas, this needs to be changed if it has a negative impact on residents' health. According to building healthy public policy, it is hoped to make healthy choices easier for people.

2. **Creating supportive environment**: For instance, we need lives, works and environments organized in a way that they do not create or contribute to bad health. These lead to the establishment of healthy public policy
3. **Strengthening community action**: Communities themselves should determine what their needs are and how their needs can be met. Thus, more power and control remains with people, not the 'experts'. Community development is a mean which can be achieved.
4. **Developing personal skills**: If people have more skills, they can gain more control over their health and environments near their residences, and they can make good choices for health. They also need the skills to deal effectively with illness and injury.
5. **Reorienting the health care system**: The health services should be reoriented in order that there will be a balance between health promotion and curative services, and the health care system can work more closely with other sections whose works impact on health. One prerequisite for this reorientation is a major change in the way that health care workers are educated.

2.3.1 New concept of health promotion in medical science culture (Chiprasit S, 2001)

For social science, it is challenging to propose a new concept of health promotion. Medical knowledge and health are formally accepted as medical professionals' responsibilities. The new concept of health promotion leads professionals to have a monopoly on health care of people and give an opportunity to people and non-medical professional groups of people to reconsider definition of health and illness. The important issue is that people have a real opportunity to participate fully under their definition of "health". However, this new concept of

health works is accepted by personnel in medical field more than people outside medical field. The question is how health personnel whose former works were disease prevention and health education which are scientific concepts work according to the new concept of health promotion which is basically a framework of social science.

Kuhn who described a paradigm shift in science explained that the paradigm shift happened because of social movement. He believed that when a new concept was accepted in scientific culture in which there were many people who believed in an old paradigm, the new paradigm would be instilled in the old paradigm (Rawson, 1995).

However, health promotion focuses on the importance of people's participation. This might be a condition that this new concept would support to promote health beyond the old notion.

In conclusion, the important conceptual question is about health promotion which is going on at present: Is it really a social movement or just only a continuous idea of public health professionals?

After the new concept of health promotion has come into practice for 5-6 years, there was a limited condition in practicing. The main reason was the process of interpreting concept into practice. There was an attempt to describe this complicated concept of health promotion in a simple way of practice and could be used generally. It resulted in faster acceptance of the concept, but finally the impact which was a challenge to go beyond the old concept was reduced and remained only in dimension of operational definition. Then, what the health promotion was or what it meant depended on what health personnel defined instead of proposing health promotion which was appropriate and effective according to people, community and environment etc. Thus, it is essential to develop a concept from an operational level (Rawson, 1995)

Disease prevention and health promotion

Generally, health personnel are accustomed to disease prevention and health education. A question often raised is whether there is any differences between health

promotion and disease prevention. The distinction between health promotion and disease prevention is worth examining.

Disease prevention and health promotion

Disease prevention is all necessary strategies applied to treat and maintain health which means the absence of disease. Disease prevention has been described in three levels: Primary disease prevention refers to activities designed to eradicate health risks; secondary disease prevention refers to activities which lead to early diagnosis of disease; and tertiary disease prevention refers to rehabilitative works which help people recover from illness. These three levels of disease prevention tend to focus on activities which prevent particular diseases, and are accordingly very specific to illness and disease. Generally, disease prevention focuses on alleviating symptoms, reducing risky factors and changing individual behaviors.

The relationship between disease prevention and health promotion

Health promotion incorporates disease prevention but extends beyond it to address broader issues of health. Brown (1985) suggested the development of a health promotion framework to complement disease prevention as shown in the figure 2:

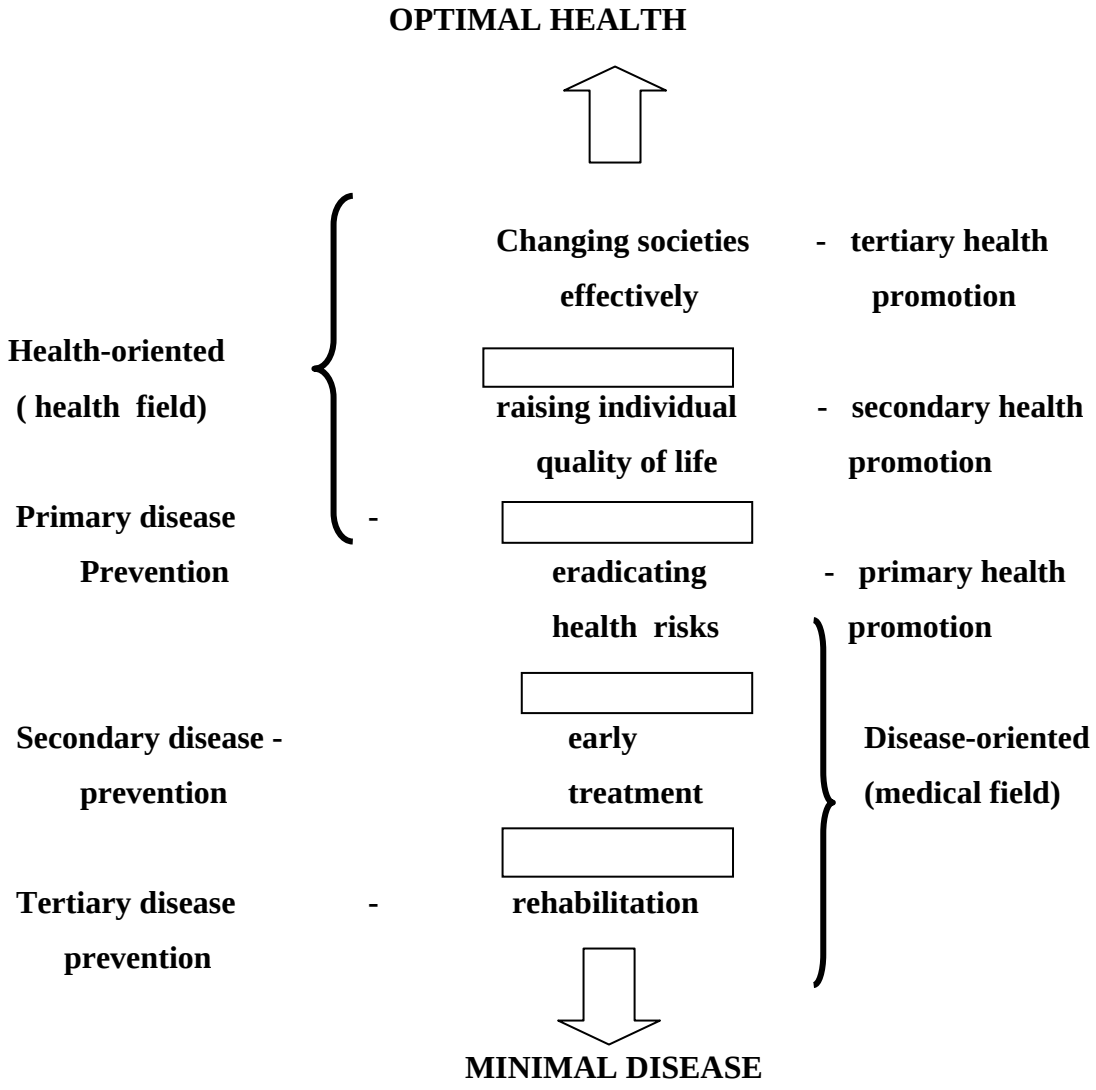


Figure 2 : A continuum of health promotion and disease prevention.
(Developed from Brown 1985: 332-3)

This figure shows that the work of disease prevention has the main goal of minimizing disease and is the work under medical concept implemented by medical personnel. As for the works of health promotion, the main goal is optimal health and working process under health concept which extends the opportunity for people to define what health is and be able to assign activities to achieve their defined health.

In this scheme, primary health promotion refers to those activities which eradicate health risks; secondary health promotion refers to activities which improve people's quality of life; and tertiary health promotion refers to activities which result in social changes which are conductive to health.

We can notice that the activities of primary disease prevention are as same as those of primary health promotion. The difference is the concept of the activities. If the approach is reductionism, the activities tend to focus on disease and health personnel will take responsibility. If the approach is holistic, the activities will focus on the importance of changing social structure, politics and environments which are responsibilities for all people, not for the health personnel alone.

In conclusion, the attempt to completely separate disease prevention and health promotion is not necessary. The more importance is about approaches if it is reductionism or holism.

2.3.2 Development and situation of oral health promotion and disease prevention in Thailand

Oral health promotion and disease prevention has been developed in Thailand for more than 20 years since the Fourth NSDP (1977-1981). According to the plan, dental activities were focused on oral health promotion and disease prevention more than treatment. Fluoride program to prevent caries for primary school children was implemented. For the Sixth NSDP (1987-1991), oral health promotion and disease prevention were the main strategies of dental public health policy. The activities were dental surveillance program, good-teeth campaign, first tooth-brush program, clean-tooth-and-good-gum program and campaigns on National Dental Public Health Day. Pit and fissure sealant on first molar has been implemented since 1997. Furthermore, there were four more important projects summarized by the board of researching project concerning "Development of oral health service in the level of districts in the future" as four aspects following: (Viboonpholprasert S, 1999)

1. Dental nurses have been provided to work in health centers to give dental services to primary school children since 1968. The activities included

incremental dental care which first started in the fourth NSDP and was later changed to the dental surveillance program.

2. Dentist distribution program has been implemented since 1989. The condition was that graduated dentists were obligated to work in community hospitals or governmental hospitals for at least 3 years. This resulted in the increasing number of dentists working in remote areas.
3. Integration of dental public health works and primary health care was implemented in the fifth and sixth NSDP. The plan of dental public health was done under the goal of "health for all", and the philosophy of primary health care was implemented according to the Alma Atta declaration in 1978. Ministry of Public Health integrated public health works as a component of primary health care as followings:

    3.1 Training village health volunteers to be able to do oral health care. There were establishments of the tooth-brush-and-tooth-paste fund as a part of the drug funds of the villages. Moreover, there was a project of training village health volunteers to perform hand scaling.

    3.2 Training health-center personnel to perform simple oral health services, for instance; emergency diagnosis and primary treatment such as scaling. In addition, dental abilities of health personnel were increased in order to be as a referral center for the dental surveillance program.

    3.3 Proposing dental surveillance program for primary school children using primary health care approach was implemented in the Sixth NESDP. The project was the collaboration of Ministry of Public Health and Ministry of Education.
4. The assignment of dental nurses to work in large health centers has been implemented since 1993. The main purpose was to develop oral health promotion at health centers to be more effective and be able to treat more patients. This could be taken into account as the first expansion of oral health services to district levels.

According to former situations, Public Health Division, Ministry of Public Health is the organization which is responsible for developing plans of dental public health. The target population was changed to pre-school children in the seventh and eighth NSDP (1992-2001). The activities were dental health education for pregnant women, dental services for mothers or guardians in well baby clinics, dental health education and toothbrush disbursement and fluoride supplemental solution distribution. The activities provided to pre-school children (3-5 years old) were: after-lunch tooth-brushing programs, oral check-ups, proper dietary management, instructions for parents and fluoride-tablet distribution. The next target population which was primary school children were provided continually with dental surveillance. The pattern of health promotion works is a top-down direction; from dental health division, Ministry of Health to provincial public health offices, community hospitals and health centers, respectively. Proposed activities were under governmental management, for instance distributing materials to support activities such as media concerning dental health education, tooth brushes, tooth paste, sealant materials and oral checking instruments including budget provided for training child-care personnel. The report of the eighth NSDP implementation in the fiscal year 2001 showed that although activities and its supportive projects achieved the goal, the result was only aimed at decreasing disease prevalence.

Issues of oral health problems were reviewed through the results of oral health survey from 1984 to 2001. It was found that the tendency of primary teeth dental caries of the age group under 6 years was obviously increased, especially in rural areas in the north-eastern part of the country (Vongkongkathep S. et al, 2001). This result demonstrated that the oral health promotion for pre-school children was not effective on caries prevention. A study of Trirote B. et al (2001) on the process of oral health promotion for pre-school children aged 0-2 years revealed that the implementation of activities did not completely cover some of the target population, for instance dental education was performed for pregnant women and parents. Less than 50 percent of pregnant women who had oral abnormalities received dental treatment. The main fault of implementation was that dental personnel paid more attention on treatment than on health promotion. Dental health education performed in one-way communication discontinuously. The implementation for age group of 3-5

years, which was aimed at toddler developmental centers, was found that there was limitation of perceiving concept of implementation. Although guardians were provided a training course, most of the guardians were not much educated and had a few experiences of health management. Activities performed in primary schools had limited conditions such as teachers and administrators felt less interested in health issues, had fewer administrative skills and had to be responsible for too many works. This resulted in an ineffective implementation of the program. This study revealed that the top-down projects could not be performed with full coverage and did not improve oral health of pre-school children. To solve these problems, it is necessary to gain data concerning real etiology and natural history of disease to improve the process of implementation that harmonizes with problems and conditions in each specific area. It is important that teams of dental health personnel from each area should realize problems of their responsible area and try to develop knowledge and potential to improve their plan which has strategies that the process of implementation would harmonize with their area's situations.

A question is always raised in recently past two decades: Why didn't oral health promotion and oral disease prevention succeed in Thailand? The possibilities were that the former activities were aimed to eradicate oral disease and didn't consider health as holistic health. Oral health promotion and disease prevention activities in Thailand were performed under preventive concept and did not consider other factors that related to oral health problems which were not only biological and behavioral aspects but also social, political and economical factors. Moreover, people believed that their oral health was a business of dental health personnel and did not realize their self-potential that they could do oral self care (Yongvanishakorn B, 2001). A study of Pornpermpoon K. et al found that management of public health services was still emphasized on treatment and rehabilitation. Time spent for activities of oral health promotion was less than 5 percent and most of the activities were performed in health-service centers. Generally, activities of oral health promotion, which were performed the most, were individual health education and grouped dental health education (Wichavuth C, 2001). Although health education led people to know more, people's behaviors were not modified and even if behaviors were modified, it did not last long (Kay, Locker, 1998). Factors that affected health negatively were more complex

according to globalization. An old concept of oral health promotion which separated from general health promotion found to be not effective (Sheiha et al, 2001). To solve oral health problems, it is necessary to implement in accordance with solving general health problems. At present, life-quality development and health promotion are modified under the concept of total patient care.

In conclusion, oral health promotion in Thailand was not successful because

1. The old concept of health promotion resulted in specific activities of each disease prevention. Oral health care was separated from general health care and implemented with authoritarian approach or health-personnel centers. Attitudes of health personnel towards health promotion should be firstly modified to improve oral health promotion.

2. Former oral health promotion works had lack of supportive factors. The important supportive factors were law and public policy which affected on oral health.

3. Oral health project in earlier period had an emphasis on oral disease prevention for high risky groups.

4. There was a lack of researching development to study the problems and needs of oral health care in each community according to the context of that specific area.

5. Strategies of oral health promotion had a lot of limitation. Most of them focused on quantity of specific activities. The strategy of holistic health was not promoted and people were not empowered to realize a need for modifying their own oral health behaviors.

6. There was a lack of community participation to find out what people want or believe. Health personnel should involve members from community in the decision-making and implemental process.

2.2.3 Health promotion and disease prevention under the policy of universal health care coverage

It was mentioned that the aim of universal health care coverage policy in Thailand is to promote “health” including treatment. Health promotion and disease prevention activities, which primary care units should provide, are:

- Providing continuous individual health records.
- Examining and taking care of pregnant women.
- Taking care of health, development, nutrition and immunization for children.
- Providing health examination for general people and risky groups.
- Providing anti-virus drugs for preventing AIDS transmission from HIV-infected mother to their offspring.
- Providing family planning services.
- Providing health education.
- Promoting people to participate in their own health care.
- Providing oral health promotion and disease prevention services such as oral health examination, oral health instruction, pit and fissure sealant and fluoride supplementation to risky groups of caries.

A study in 6 pilot provinces was implemented under the policy of universal health care coverage by the Division of Public Health concerning oral health promotion and disease prevention in the first 6-month period revealed that: (Arunprapun S. and et al, 2001)

1. It was not obvious how oral health promotion and disease prevention were implemented in this new health-service system. Activities concerning promotion and prevention for primary school children which was formerly undertaken by provincial public health offices had problems of responsible units and budget units. It was interesting that dentists had no comments about oral health promotion and disease prevention services.
2. Types of dental services which were privileges according to the policy of universal health care coverage did not conform to its objective about health emphasis.
3. The concept under the policy of universal health care coverage was totally different from health personnel’s perception. Thus, it needed a process to develop understanding and change attitudes to the new direction of working procedure.
4. There were no primary care units in this studied period.

This study was in accordance with the study of Larpying P (2001) concerning 4 regional representative provinces (Collected between December, 2001-Febuary, 2002).

Both studies revealed that it was not obvious to understand the policy of universal health care coverage. There were problems in dental services for urban school children and resource management. Dental health personnel did not work properly, for instance dental nurses worked as dental assistants or as clerks. There were still problems to integrate oral health promotion and prevention to general health promotion so that other health personnel could take responsibilities according to holistic approach. Health teams normally considered oral health the least prior importance since it was not an urgency compared with other types of health. Thus, health teams needed dental health personnel to continue their duties as before.

In conclusion, for more than two decades, oral health promotion and disease prevention have been performed in disease-oriented dimension. It is essential for the new concept concerning health promotion and disease prevention to find a balance between treatment and rehabilitation services containing health promotion and prevention activities. It is also important to find a strategy for shifting disease-oriented to health-oriented dimension.

2.4 Cultural capital

Pierre Bourdieu, the French social scientist, divided capitals into 4 categories: Economic capital means money; social capital means positions or social networks; cultural capital means potential of action or innate knowledge of how to do thing right; and symbolic capital means fairness. Each category of capitals could be interchanged.

For modern society, the cultural capital could be found in a form of education. The social capital in a form of social networks determines different accesses to sources of income in labor markets (Swartz, 1997: 73-5).

Bourdieu explained that the cultural capital was separated into 3 levels:

The first level is the cultural capital of one’s character: One’s position, attitude and point of view are internalized. It is described as a process of social cultivation:

learned characters which are cultivated by a society. Since ones were young, cultural capitals and potentials to understand meanings have been accumulated through instillation.

The second level is the cultural capital attached to cultural products: for instance, books in art works and scientific equipments which have to be learned how to use.

The third level is the cultural capital in institutes: for instance, educational institutes which provide knowledge repeatedly. Knowledge is regarded as a cultural product which can be potentially changed into other resources. Education is a way to access other resources. Bourdieu believed that education could make differences of classes. (Bourdieu and Boltanski, 1997: 33 cited in Swartz 1999)

Bourdieu developed the concept of cultural capital from a research which explained different levels of success of students. It was found that for the levels of success, not only individual factors such as intelligence or talent play an important role, but the differences of quantity and types of cultural capital that each child has due to an accumulation from environment in families are also important (Swartz, 1997: 76).

The accumulation of cultural capital takes a lot of time and labor. The meaning of labor is not just the physical labor but including social, political, religious and familiar labors that lead to various forms of accumulation (Winai, 2002: 11).

The concept of cultural capital could be applied to some occupations, for instance: mass media, artists and scholars. An individual especially in the middle class could change the cultural capital to economic compensation (Swartz, 1997: 82).

As for dentists, it is regarded to be a career in the field of health science. This career accumulates the cultural capital and changes the cultural capital to obvious economic compensation. However, institutions of dentistry which function as a form of social cultivating process could change personal circumstances. Bourdier paid a lot of attention to rites of institution regarding the process of social cultivation. The rites are dedicated to the process of choosing someone to be cultivated and accumulating enough cultural capital to change (Robbins Derek, 1991 cited in Winai Boonlue, 2002). Therefore, institutions of dentistry are basic social units to develop value judgments, tastes and forms of dentists' behaviors. It is regarded to be a foundation which Bourdieu called "Habitus".

"Habitus" is a system of individual characters. In case that a social type is not too complicated, Habitus could belong to a group, for example Habitus of the first class. Habitus is regarded to be a social foundation of individuals. In addition, it is a principle of expressions, actions and dealing with any specific situations (Bourdieu, 1993). This expression is called "practice" which is one of Bourdieu's analytical tools.

Bourdieu's main analytical tools are comprised of field, capital, habitus, agent and practice (Boonlue, 2002: 6).

"Field" is an interactive network among people or between individuals and institutions. The concept of field plays an important role since it provides places for "practice" according to a set of logic. Bourdieu explained about "field" that it was a field as the playing field, for instance academic fields or dental education fields. Each field was used to fight for resources or accumulate social-, cultural-, economic- and symbolic capitals.

As for academic fields, Bourdieu was interested in roles of intellectuals in modern society. He tried to understand the so-called intellectuals through practice, dynamics of cultural capital, fields of cultural creation and regulations of classing in modern society. The theory of intellectuals' practice was created from benefits. Bourdieu integrated the concept of 4 types of capitals and indicated that in modern society. The symbolic capital was often changed to benefits of economic capital (Swartz, 1997: 218).

Bourdieu did not believe that academism is a united institution. It contains inner differences. Each intellectual or each group has different strategy to fight for symbolic fairness. Everyone is classed through differences of cultural fields which he/she has invested. According to types and quantity of cultural capital which each person possesses, intellection will be defined from his/her position in intellectuals' field. This field means a filed of fighting for power to define a fair form of cultural creation. Bourdieu thought that fighting for fairness between rule protectors and those who wanted to overthrow the rule was done according to some agreements called "DOXA". It is a basic hypothesis to adapt all intellectuals' ideas in the fields. No one realized that the academic system plays a major role to create DOXA. It concealed in

all periods and contained specific differences under the conditions of time and place (Swartz, 1971: 230-2).

Bourdieu analyzed scientific fields in his article: The specificity of the scientific field and the social conditions of the progress of reason (Boudieu, 1995: 19-26). Scientific fact is based on social conditions. In conclusion, scientific fact which is always referred as universal is actually just a specific circumstance in the structure of scientific fields.

Scientific fields are places of competition. It is a system of relationship between positions of authorities who won combats in the past and possess the right of scientific authority. To monopolize the definition of science is that a group of agents is accepted by a society to be able to speak and do fairly about scientific issues. In addition, struggles in this field will create a specific pattern of benefits, for instance dentists have rights to speak, write or do anything in dentist fields. As for social phenomenon, there was a fight for the right of speaking, thinking and doing in the field of oral organs. Also, there was a fight for places to practice between oral surgery and plastic surgery.

Focusing deeply on the field of academic authority, Bourdieu proposed in his article “Homo Academicus”: In high academic institutions in France, faculties, departments and scholars in university system were different. If they were placed on the opposite poles of cultural capital and economic capital, it would be found that the Faculties of Law and Medical Science were close to the pole of economics and politics but the faculties concerning science of nature, society and art were closer to the pole of culture (Swartz, 1997: 240 -1).

In each faculty, academic institutions are generally divided into 2 types of power. The first type is academic power which controls academic organizations. Another type is scientific power which is accepted by academic institutions. Bourdieu found that in academic fields, there were fights for power in each faculty between the two mentioned groups of scholars. The first group sought for power by controlling the value system of organizations. The other group tried to form a new value system of knowledge. Groups of scholars who are in academic fields such as jurisprudence and medical science tend to be close to the pole of economics and politics. Also, they tend to fight against the movement of basic system reformation which threaten and destroy

their value system. On the other hand, the scholars in the fields of art and science are located on the pole of scientific power. It is quite far from the pole of economic power. They tend to support the movement of creating new patterns and value of knowledge. (Ritzer, G., 2000:405-7)

However, focusing on faculties especially the Faculty of Medical Science, some differences were found. The group of scholars who were researchers for basic knowledge of medicine and science were on the pole of scientific power. Their political thoughts relatively tended to be revolution (left). Whereas the group of scholars who were doctors especially surgeons were on the pole of academic power. Their political thoughts relatively tended to be conservation (right). Bourdieu summarized that the scholars who were far from the pole of economic and political power mostly did some research for new knowledge. They raised more questions about the unequal of social status than the scholars who were close to the pole of economic and political power did. They worked on academic and played a role to cure and transferred the cultural heritage of the scholars' social system (Swartz, 1997: 245 - 6).

Bourdieu's concept of cultural capital is dramatically interesting in the framework of oral health care promotion. It is noteworthy how the accumulation of the cultural capital (knowledge), which was changed to the economic capital under the academic system of dentistry, is brought into order in the academic institutions and academic fields of dentistry. In addition, in areas of oral health services in the system of health service, on which pole between the pole of academic power and scientific power should the cultural capital concerning oral health care promotion and oral disease protection be placed? Under the conditions within the areas of health services, activities of health promotion might not be outstanding in practice how the dental technicians are linked by Habitus.

2.5 Michel Foucault's concept of discourse, power and knowledge:

As for Foucault, discourse is not only a language but it is a group of statements that is a method to present some special knowledge. It is the creation of knowledge which influences the society to practice (Stuart, 2001). Discourse is a system of

creation. It creates meanings and significances of things in societies that cover around all of us, such as knowledge, reality, power or even our selves. Things or knowledge are created by the society and can be transformed into other possible ways, even into some unexpected forms (Geikf, Tony,Jen,2000). That is: our ways of thinking about things are managed. Discourse has created orders of things for ruling people in societies to follow by hiding them in a form of knowledge (Chareonsinolarn, 1999).

Foucault stated that the reality was not out there for human to discover, but reality was recreated by the discourse in various forms of things that depended on each society. Each society has its own culture and constructs the discourse to manage the orders of things. After the discourse had widely been accepted, it would be transformed to be the dominant discourse. This dominant discourse in the form of speaking, writing and acting are called discursive practice. All various forms of discursive practices such as traditions, customs, taboos, thoughts, values, beliefs, and even the institutes in the society are used for the instruments in the discourses. The functions of the discursive practices are to recreate the meanings significances and orders of things until the people are convinced and accept. So, the created knowledge can become the reality by the discourse (Chareonsinolarn, 1999). This knowledge becomes the reality and pushes the society to practice in the pattern that has been constructed. The knowledge is power. On the other hand, the power can create the knowledge and become the discourse, too. The knowledge which is powerful should be created by experts (Foucault, 1980).

In modern society, the power is showed by techniques of discipline, such as surveillance, categorization and gazing. Gazing is another issue that Foucault tried to describe. Medical gaze is a technical power to manage a human body as a docile body. The body is accounted as a machine for physicians to repair and control human lives from birth to death. Gazing is the technical power making the human to be a subject as in the technique of panopticism. Panopticism is the technique for controlling individuals to perform themselves as if they were gazed all the time. It is a tool for modern society to manage and control people in the society.

Beauty that is accepted in the society is another constructed discourse. The knowledge of beauty or discourse is obligated to change women’s identities and their lifestyles to be different from the past. At present, the beauty in the modern society is

created by medical system and recreated by medicine. Women's desired beauty can come true by medical services, as called "Beauty by physicians". The medical system tries to force women to think and believe in the medical system that can change their bodies to be beautiful bodies. The body is transformed to be the subject and become the docile body for physicians.

The modern medicine applies the scientific knowledge to create the medical discourse and marginalize the traditional Thai medicine. The modern medicine has a right to explain the humans' health and lives by using the scientific knowledge which is powerful in the society. The government also used the medical discourse to construct and manage the health system for the society (Puensom, 2001) and even determine the size of families in the society (Praditsilp, 2000).

The concept of bio-power that was proposed by Foucault is also a tool for the government to control people in the society. Individuals' right to die in the 17th century was changed to be the responsibility of the government. Controlling people by sovereigns was changed to promoting health and wealth by constructing a discourse for ordering the individuals' lives. The discourses that the government used to discipline the individuals were constructed from the medicine. People are convinced to practice for their health by the medical discourse as if they were gazed all the time. To take care of our health by medical surveillance, inspection and routine check-up are the discursive practices and these practices are controlled by unseen power or gazing. Power can achieve its goal if it can hide as much mechanism as possible (Foucault, 1984).

It could be concluded that discourses in the society are created by the knowledge especially medical and scientific knowledge for people to acknowledge and do docile practices. Discourses make the created things or knowledge last forever by ordering, categorizing and ruling people to practice. It is called discursive practice. Nowadays, the government is applying the medical and scientific knowledge that are most powerful to create the discourse to intervene people's lives by stimulating their desires instead of repression.

There are some medical scholars using the discourse to explain and understand medical discursive practices in the medical education. Goods (1994) analyzed the process of the medical education in the medical school of Harvard University by

trying to explain how medicine constructed its objects and semiotic study of medical reality. The questions in his research were how medical students learned medicine, how they changed their brain every day and how they interacted with their information. He proposed that medical gaze was the medical discourse and was the origin of constructing medical objects. The medical gaze was the discursive practice and obligated to shape the perception of medical students in the medical ways: ways of speaking, writing, and seeing.

For medical students, the body and pathology are constituted as distinctive "medical" during their education. Entry into the world of medicine is accomplished not only by learning the language and knowledge base of medicine practitioner engaging and formulating reality in a specific "medicine way": They include specialization of "seeing" "writing" and "speaking'.

Several elements analyzed were suggested by the observation of Goods and Goods (1993) in the issue of "learning medicine, the constructing of medical knowledge at Harvard Medical School"

- Medicine is introduced as science. Science is a part of entering into the world of medicine.
- Medical education begins by entering into the body, thus the body is the object of attending and manipulating skills and the site of unending learning.
- Medicine is learned from the perspective of individual's case. The case is a frame for learning and the individual is an object of the medicine. Social data are presented, but they are presented as identifying feature and significant indicators of potential pathology, dimension lifestyle and risky factors.
- Caring and competence are dual discourses for good physicians. Competence is closely associated with the natural science and caring with the humanities. Competence is a quality of knowledge and skill and caring is a quality of a person. But many feel that the science has to be learned and caring is an innate quality of human. It has to be cultivated but not taught.

- After medical students have graduated from the medical schools and become “doctors” whose competence is a quality of knowledge and skill for cure. The process of cultivation in medical education creates the medical students to be the objects in the process of medical gaze.

Conrad (1988) also reflected the medical education that medical students learned not only anatomy but also a certain objectification of human body: A separation of soma from persona. Doctors’ clinical perspectives focused almost entirely on the disease rather than on the illness. Virtually all teaching emphasized the technical aspects of doctoring: diagnosis, treatment and intervention. Today doctor and the medical students are enamored with the technological aspect of medicine. The training put a lot of emphasis on instrumental rather than caring of patients. The power of diagnosis and cure is higher than the power of care. Medical schools are a powerful socializing force and medical students absorb many values of the medical profession along with the biomedical knowledge and techniques. Technological medicine with its disease orientation, myriad lab tests, complex intervention and “fix-it” mentality pays scant attention to teaching about doctor-patient relationship.

For the dental profession, Nettleton (1988) criticized that the consequence of the mouth was not dentistry, rather dentistry produce the mouth. Prevention and promotion of dental health were explained under the discourse of the principle of good oral health for people, so the concept of oral health promotion and prevention became to be the principle of dental health education. The discursive practices of dental education, such as oral health surveillance, oral hygiene technique and routine oral health examination were the dental gaze for people to take care of their own oral health. People became objects for dentists in unending treatments. There was also much dental knowledge to recreate in the society: the knowledge of etiology of dental caries and harmful sugary food and brushing their teeth twice a day for their oral hygiene.

Dental professions in Thai society are another interesting issue to be searched. Why do dentists concern about treatment rather than promotion and prevention. What is the basic principle discourse of the dental health? What are the nationwide

discursive practices for people to be practiced? How the process of cultivation in the dental education is imbued with the dental profession and lead them to focus on treatment more than promotion and prevention?

CHAPTER 3
METHODOLOGY

This study is based on the qualitative research methodology. The objectives of this study were to study dentists' concepts of oral health promotion under the conditions and contexts of health service system in Chiang Mai Province and to study the influence of medical science discourse on dental students' thoughts of health promotion which occurred in practical discourse on campus of Faculty of Dentistry, Chiang Mai University.

3.1 Study area

The area of this study was selected with the purposive selection. The study was performed in Chiang Mai Province which was the province involved in the policy of the Universal Health Care Coverage Project since October 1, 2001. There were both governmental and private sections providing health services. Therefore, the health service system of Chiang Mai could reveal the reason why dentists focus on dental treatment rather than oral health promotion. Also, it could reflect the role of dentists in Thai society. Conditions and contexts of the health service system in Chiang Mai are widely varied. More than 80 percent of dentists working in Chiang Mai graduated from Faculty of Dentistry, Chiang Mai University. All these reasons cause Chiang Mai to be a province, which was an appropriate area for studying dentists under medical science culture, and led dentist to focus on cure more than oral health promotion.

Moreover, the Faculty of Dentistry, Chiang Mai University was established in 1973 in Chiang Mai Province. It was founded after the Faculty of Dentistry, Chulalongkorn University (1970) and Mahidol University (1973). The dental curriculum of Chiang Mai University takes account of being stabile and could be applied to study discursive practice of cultivating process to be dentists under medical

science culture. In addition, the Department of Community Dentistry in Chiang Mai University is famous for the educational management. The dental students' concept of oral health promotion has been fostered intensively. Thus, the Faculty of Dentistry, Chiang Mai University is an appropriate area to study the process of passing discourse to dental students and the conflict of oral health concepts between biomedical aspect and oral health promotion aspect.

3.2 Informants and sampling

The informant comprised of 2 groups:

3.2.1 21 Dentists working in health service units in Chiang Mai are selected to be the key informants from :

- 64 dentists working in the health service units of Ministry of Public Health: 1 general hospital (10 dentists) and 22 community hospitals. (54 dentists)
- 7 dentists working in other health service units: municipal hospitals, Air Force Hospital (Airforce41) and Police Hospital. (Gavila)
- 59 dentists working in 14 private hospitals and 68 private dental clinics.
- 126 dentists working in the educational institutions and in the Faculty of Dentistry, Chiang Mai University.

Purposive selection is the method used for selecting dentists to be key informants. The ideas about oral health promotion and activities of key informant dentists will lead to discursive practice of medical science in the health care system. Therefore, the key-informant dentists are those who have worked in health service units more than 3 years and have many or few activities of oral health promotion and prevention. They were evaluated from the report of public health performance of fiscal year 2001-2002 in Chiang Mai province. Moreover, the ideas of dentists working in the provincial public health office about contexts and conditions of each

health service center which affected the oral health promotion and disease prevention development were also considered.

Hospitals which were considered in this study were:

In urban area: Chiang Mai Municipal Hospital, Mother and Child Hospital, Kavila Hospital, Central Memorial Hospital and private clinics.

In semi-urban area: San Sai Hospital, Hang Dong Hospital and Sun Kam Pang Hospital

In rural area: Mae Eye Hospital, Mae Jam Hospital and Doi Tao Hospital

3.2.2 Dental students studying in Faculty of Dentistry, Chiang Mai University

At present, the Faculty of Dentistry offers six years for undergraduate program leading to Doctor of Dental Surgery with 126 instructors, 480 students (80 students per year on average). The objective of including this sample group is to understand cultivating process to be dentists, how the cultivating process happens and how medical science concept is instilled and how oral health is separated from other parts of the body. 15-20 dental students are purposive selection to be the key informants in this study. The sample groups of 5-10 students from each year who had rich information were selected in order to gain the needed information that covers basic science, pre-clinical science (anatomy, histology, microbiology), dental science and dental clinical science (dental anatomy, dental histology, occlusion, oral diagnostics, oral radiology, orthodontics, restorative dentistry, prosthesis and community dentistry).

3.3 The selection of key informants

The criteria of Spradley (1979) were applied in this study as followings:

- Key informants should have good understanding of their own culture. Generally, key informants who provide good information should experience their world for quite a long time to be able to provide confiding answers.

- Key informants should take part in current events or culture. The key informants who involve in present situation would clearly understand the situation. It results that the learning characters of the key informants could be accessed.

Thus, a part of the key informants in this study are dentists who graduated from Faculty of Dentistry, Chiang Mai University and have worked in health service units in Chiang Mai more than 3 years. It is sure that key-informant dentists have good understanding of contexts and conditions of health service units in Chiang Mai.

Another group of key informants are dental students in Faculty of Dentistry, Chiang Mai University (at the time of researching). These dental students must be studying and have ever studied theoretical and practical courses in dental clinics and in communities. Besides, the dental students who are key informants have varied academic effectiveness, so they could reveal variation of adaptation under the same medical science discourse.

3.4 Approach of key informants

Since I have been a lecturer teaching in Faculty of Dentistry, Chiang Mai University for more than 10 years, therefore; I have a good understanding of the context of dental education. Thus, it is not essential for me to learn to be an insider as the process of data collection in humanity research. Moreover, I have given lectures on several subjects in the Department of Community Dentistry which are called “soft science” by scholars. It is the opposite of “hard science” or clinical dentistry. It is advantageous that key informants who are dental students could provide information in laboratory and clinical practice courses with full rapport. Giving information would have no effect on their courses’ performances.

In addition, I was often invited to be a lecturer on several training courses arranged in Chiang Mai and also have research projects that implement in Chiang Mai, so dentists in the province are quite accustomed to me. Moreover, more than 80 percent of dentists working in Chiang Mai graduated from Chiang Mai University where I have been working. In addition, I have ever worked in Ministry of Public Health and have ever worked as a part-time dentist in private clinics in Chiang Mai.

Thus, I have a good understanding of dentists' culture, and I am quite convenient to be an insider and easy to gain rapport from the key informants.

3.5 Instruments for data collection

3.5.1 In-depth interview

Using open-ended questions, in-depth interview was given to both sample groups: dental students and dentists. To analyze medical science discourse constructed in dental education, not only the in-depth interview but also participatory observations in students' classes were applied. The in-depth interview with groups of dentists was performed to study the cultivation of dentists through dental education and socio-cultural contexts in health service units.

3.5.2 Observations

The observations were carried out from all subjects of students from the first and the sixth year in the academic field of Faculty of Dentistry, Chiang Mai University. The observations were made in lecture rooms, laboratories and dental clinics. Relevant subjects were chemistry and biology in the first year of dental curriculum; anatomy, histology and microbiology in the second-third year of curriculum; dental anatomy, oral biology, dental occlusion, prosthodontics, endodontics, restoratives, orthodontics and community dentistry in the third-sixth year of dental curriculum. Another observation was in the health care services of Chiang Mai Province. Dental health service in the general hospital, 4 district hospitals, one private hospital and 2 private dental clinics.

3.6 Triangulation

Triangulation is a method applied for assessing data validity in this study. This method not only provides the assessment of validity but also provides various

means of data collection, therefore; the data could be clearly understood. (Maggs C, 1997; 321-322).

Triangulation should be performed in several stages of research processes: designs of research, data collections, data analyses or all processes of the study. Denzin (1998) divided triangulation into 4 types:

1. Data triangulation was performed by using many sources of data.
2. Using more than one investigator to prevent bias of one observer performed investigator triangulation.
3. Applying several theories to describe the same group of information performed theory triangulation.
4. Applying more than one method of data collection to study the same research question performed triangulation of data collection method.

As for this study, I have applied data triangulation to assess the validity of data. If there was unclear, incompleted data, I would later ask key informants more questions to clear the point to develop the same understanding. In addition, for the same question, I used many sources of data collection and different methods of data collection.

3.7 Data analysis

Qualitative data analysis was applied in this study. Initially, documents were collected. Analyzing process was not totally separated from data collection, but the analyzing process, data collection and analysis in the field were performed simultaneously. The data collection started from oral health activities of dentists in Chiang Mai health units that would be the discursive practices of biomedical science discourse. These discursive practices were related to the learning process of dental students in the Faculty of Dentistry and practicing process of dentists in the health units. Thus, discourse analysis was applied to reflect how biomedical science discourse of dental students in dental educational system had an influence on the dental health performance in the health system.

Data which were gained from the data collection and analysis of dental students were used to interview sample groups of dentists. This process joined dentists' practices to practice discourse and cultural capital received during dental education.

3.8 Ethical consideration

Key informants' rights were considered consciously in this study, I informed all of them the information they should know in order that they could make decision whether they would participate or not. The information included:

- The nature of the research project: the key informants were informed explicitly that the project was involved in the research and how they were recruited. The purposes of the research and the name of the researcher were also given.
- The process of the study: they were informed about data collection methods and were asked for tape recording during interviews.
- Assurances that participation in the research is voluntary: they were informed that they could quit anytime and had rights to address nothing or even stopped the interviewing process anytime they wanted.
- Protection of confidentiality: they were informed that their answers would be kept in privacy and confidentiality was protected. Results of the research would be presented only on academic purpose and their name would not be presented.

3.9 Duration of the study

This study lasted 6 months, from April to September 2003. Collecting the data from the key informants in the health service units of Chiang Mai Province, 6 district hospitals, 1 general hospital, 1 private hospital and 6 private dental clinics. Another key informant is dental students in the Faculty of Dentistry, Chiang Mai University.

The dental education curriculum is a yearly system, starting from midst of April, 2003 until the end of February of the later year. Thus, this duration time, April to September, is proper to collect the information and observe the life of the key informants.

3.10 Expected outcomes

1. Leading to improve the dental curriculums from disease-oriented to health-oriented concept and emphasize “health” of people.
2. Leading to develop oral health promotion and disease prevention in health service system under the UC project policy.
3. Leading to understand the context of health care service system which influence to dentists’ oral health concept and practice

CHAPTER 4
RESULTS

The purpose of this study is to examine the concepts of oral health promotion of dentists working in health care service system in Chiang Mai Province, and the conditions or factors affecting them. The study is also emphasized on the discourse of oral health promotion that is reproduced in learning and practicing process during their dentistry education. To answer the first question, in-depth interviews were carried out with the dentists in Chiang Mai Province and the latter, with students in Chiang Mai University's Faculty of Dentistry to understand how biomedical science discourse is reproduced in dentistry educational system.

Dentists working in health care services in Chiang Mai Province are selected as key informants for examine their oral health promotion concepts. I have started approach dentists working in the Chiang Mai Provincial Health Office for understanding the overview of dental public health situation in Chiang Mai Province before I decided to select these dentists as key informants. Chiang Mai province is a big city with 22 district hospitals, 1 general hospital and 14 private hospitals, 68 dental clinics. Chiang Mai Provincial Health Office have divided Chiang Mai area into 3 zones, there are inner zone, middle zone and outer zone. The district hospitals in the outer zone are nearby the marginal are of the province, i.e. Viang Heng Hospital, Doi Toa Hospital, Mae Eye Hospital and Mae Jeam Hospital. Dentists working in the district hospitals are highly turned over to the middle and inner zone or to the city as private practictioners. Most of them are under 30 years old with 1-3 year experience in dental practice. While the district hospitals in the middle zone are about 60-100 Km. far from the city as Jom Thong Hospital, San Pra Thong Hospital, Proa Hospital and Fang Hospital. Dentists are less than 10 years dental practice and most of them have moved from the other area of Chiang Mai Province especially the outer zone. While dentists working in the district hospitals of the inner zone are rather stable and have gained their dental practices more than 10+years. In the inner zone,

there are district hospitals such as Hang Dong Hospital, San Sai Hospital and San Kam Pang Hospital, and general hospital. All of the private hospitals and private dental clinics are in this area. Dentists working in the general hospital and private hospitals or private clinics are more specialties trained in dentistry, i.e. Orthodontics, Pedodontics and Oral Maxillofacial Surgery, and age of 35^{+} years. Thus, the key informants in this study are dentists who graduated from Faculty of Dentistry, Chiang Mai University and have worked in health service units: district hospitals, general hospital and private hospitals or dental clinics, more than 3 years. It is sure that key informant dentists have good understanding of contexts and conditions of health service units in Chiang Mai.

Totally, 21 dentists are selected to be the key informants of this study as show in Table 7. Three are working in the general hospital, 13 dentists are in the district hospitals with 5 in the inner zone and 4 in the middle zone while another 4 are in the outer zone. The rest (5 dentists) are the representative of private hospitals and dental clinics. These key informants, are fourteen female and seven male dentists with the average of age 33 years old (maximum age =62 and minimum age=26). I have interviewed and observed all of these key informants while they are working in the hospitals and clinics.

Table 1: Characteristics of dentists in the health care services of Chiang Mai Province as key informants

Dentists	Gender	Age	Working status
A	Female	38	in private clinic for 10^{+}years, graduated from CMU
P	Male	44	in private clinic for 20+years, graduated from CMU
Y	Male	40	Periodontist, private hospital, graduated from CMU
V	Female	32	Private clinic, graduated from CMU and had ever practiced in district hospital, Tak province.
B	Female	62	Private hospital, have retired from Faculty of Dentistry, Chiang Mai University
E	Male	48	Head of Dental Health Division, General Hospital and graduated from CMU
F	Female	30	Pedodontist in General hospital, graduated from Khon Khaen University
I	Female	38	Oral Maxillofacial Surgery in General Hospital and graduated from CMU
O	Female	40	In Chiang Mai Provincial Health Office, had ever been in district hospital in southern part
N	Female	33	In Chiang Mai Provincial Health Office, had ever been in district hospital in Chiang Mai Province and graduated from CMU
Q	Male	48	In Chiang Mai Provincial Health Office for 20+years and graduated from CMU
G	Female	26	Doi Toa hospital, has just graduated from Faculty of Dentistry, Chiang Mai University

Table 1: Characteristics of dentists in the health care services of Chiang Mai Province as key informants (cont.)

Dentists	Gender	Age	Working status
E	Female	42	Fang hospital for 10+ years and graduated from CMU
G	Female	26	Doi Toa hospital, has just graduated from Faculty of Dentistry, CMU
M	Female	33	Mae Eye hospital, had graduated from CMU
K	Female	45	Hang Dong hospital, had graduated MPH program from CMU
C	Male	29	San Kam Pang Hospital, and graduated from CMU
N	Male	29	San Pra Tong Hospital, and graduated from CMU
W	Female	34	Orthodontist graduated from CMU, working in San Pra Tong Hospital
S	Female	37	Have ever trained conprehensivse dentistry program in CMU
A	Male	39	Sarapee hospital, graduated from CMU
L	Female	30	Mae On hospital , graduated from CMU

Another type of key informants is dental students studying in the Faculty of Dentistry, Chiang Mai University for searching the discourse of biomedical science in the learning process of dental education system. Since I have been a instructor teaching in this Faculty for more than 10 years, therefore; I have a good understanding the context of dental education and dental students. Thus, 16 dental

students have been chosen as the key informants in this process with ten are female and 6 are male. Two dental students in the 2nd year dental education have been interviewed while they are studying in the dental anatomy laboratory class. Three of the 3rd year students are in the endodontic (root canal treatment) laboratory class when I have interview and observe their learning process. The rest of the key informants, two are in 4th year student, six are the 5th year and four are 6th year, are interviewed while they are practicing in the clinic.

Table 2: Characteristics of dental students of Faculty of Dentistry, Chiang Mai University, as the key informants

Dental students	Level of education	Gender
A	2nd	female
C	2nd	female
S	3rd	male
K	3rd	male
F	3rd	female
C	4th	female
D	4th	male
Y	5th	male
J	5th	female
T	5th	male
M	5th	male
N	5th	female
K	5th	female
B	6th	female
V	6th	female
I	6th	female
L	6th	female

To present the results of this study, I would divided into 3 parts. Part 1 relates to the dentists' oral health promotion concepts and practices, answering how the biomedical science discourse influences the dentists' oral health promotion concepts and practices. Part 2 shows how dental health system influences or shapes and sustains the biomedical science discourse. Part 3 describes how biomedical science discourse is reproduced through dental educational system

4.1 Dentists' oral health promotion concepts

4.1.1 Routine tasks of dentists

In Chiang Mai, there were 256 dentists of whom 77 were working in general hospitals; 22 in district hospitals; 59 in 14 private hospitals; and 68 in private dental clinics. The rest, 126 dentists, were university staff at Chiang Mai University's Faculty of Dentistry.

According to the in-depth interviews and observation of 21 dentists working in various health care services in Chiang Mai Province, it is found that their routine oral health practices were overally curative-oriented.

Generally, there were 1-2 dentists and 2-3 dental nurses working in a community or district hospital. Their daily activities were treatment for simple emergency cases (about 30 cases a day). Most services provided in the morning were tooth extraction, tooth filling, and calculus scaling. Services for complicated cases, such as root canal treatment, denture or prosthodentic care, and removal of impacted tooth were routinely provided in the afternoon according to the appointment.

The oral health promotion and prevention activities in Chiang Mai were under the responsibility of dental nurses. The routine services in the governmental hospitals were:

-Oral health examination and education to pregnant women in Antenatal Care Clinic (ANC) at least once a week

-Oral health examination and education to parents with their babies in Well-Baby Clinic (WBC) at least once a week

-Oral health surveillance for primary school children, carried out by mobile dental clinics. Simple dental care service such as tooth extraction is also provided. Children who needed filling and pit –fissure sealing would be referred to the hospital. However, because there were a lot of primary schools in each district (about 20-50 schools), the mobile dental clinics' staff team could visit each school only 1-2 times per year.

-Oral health promotion and prevention for children in Day Care Centers—oral health examination, done only twice a year and dental health education for health practitioners

- Oral health examination and education for elderly people and diabetes patients, occasionally done in some hospitals

Table 3: Time schedule of dental public health service in Proa Hospital, Chiang Mai Province

Time / Day	8.00 - 12.00 AM	1.00 - 4.30 PM	5.00 - 7.30 PM
Monday	• Dental care for OPD patients • P & P care at WBC	*Dental care for appointed cases and emergency cases	*Special oral health care
Tuesday	• Dental care for OPD patients • P & P care in primary school		
Wednesday	• Dental care for OPD patients • P & P care at ANC		
Thursday	• Dental care for OPD patients • P & P care at primary school		
Friday	• Dental care for OPD patients • P & P care at Day Care Center		

Source : Dental Public Health Department, Proa Hospital
Note : Only 1 dentist and 2 dental nurses on duty

Table 4: Time schedule of dental public health service in San Pa Tong Hospital, Chiang Mai Province

Time / Day	8.00 - 12.00 AM	1.00 - 4.00 PM	5.00 - 7.30 PM
Monday	Dental care for OPD patients	* Dental care for appointed cases and emergency cases * P & P at primary school	*Dental care for OPD patients
Tuesday	Dental care for OPD patients P & P oral care at WBC		
Wednesday	Dental care for OPD patients P & P oral care at ANC		
Thursday	Dental care for OPD patients P & P oral care at ANC		
Friday	Dental care for OPD patients		

Source : Dental Health Department, San Pa Tong Hospital
Note : 3 dentists and 1 dental nurse on duty

During extra time (5.00-8.30 pm), dentists in the district hospitals worked as a private practitioner in government hospitals. Providing complicated dental care in this extra time, they could earn more income additionally to their salary from the government. Most of their activities were curative. This extra clinic policy was proposed by Ministry of Public Health for stabilizing health profession especially medicine and dentistry in rural public health care services. Dental care promotion and prevention were seldom provided in the extra time because they were restricted to be free of charge according to the dental public health policy. Simple dental care— extraction, filling, and scaling were provided only during official time because there were 30-40 patients daily. In the evening, dentists provided complicated dental care, such as root canal treatment and prosthodontic treatment so dental care promotion and prevention were rarely provided. And most dentists working in public health care service as Faculty of Dentistry's instructors also worked in their private clinics. This evidence shows that the role of dental professionals was most likely to be a curative one.

In general or provincial hospitals where there were many more specialists on duty, most oral health care services were treatment. Complicated cases

were such as root canal treatment in permanent teeth, pulp treatment in deciduous teeth, removal of impacted and embedded teeth, and surgical operation for maxillo-facial complication. There were 8 dentists working in general hospitals without dental nurses. Thus, most oral health promotion and prevention activities were done only in their clinics, where pit and fissure sealant and dental health education were their main tasks. In here, there were no activities for pregnancy women in Antenatal Care Clinics and for babies in Well-Baby Clinics like in district or community hospitals. A dentist in a general hospital reflected:

> "This hospital is the secondary health care service. Most dentists were trained with specialty. There are 3 who have already been trained in maxillofacial surgery, prosthodontic (denture care), and endodontic (root canal treatment) respectively. The other 2 are being trained in pedodontic and periodontic profession at Faculty of Dentistry. The hospital also needs specialists in orthodontic care. There should be dental nurses in general hospitals to take responsibility for providing oral health promotion and prevention activities."
>
> (Dentist E, General hospital)

The dentists working in private clinics and hospitals had main tasks on curative and rehabitative care such as orthodontic care and implantology for denture care. Pit and fissure sealant in the children aged fewer than 14 was the only preventive activity in the dental clinics. Generally, dentists in private health care service performed their dental tasks not relating to other health care providers as those in governmental health care services. Mostly, there were 1-2 dentists working in a private clinic and hospital in official time (9 am-5 pm) and there would be more dental specialists in the evening. Most specialists were staff of Chiang Mai University's Faculty of Dentistry.

This is an overview of dental health care practices of dentists in Chiang Mai whose most activities were curative-oriented.

4.1.2 Dentists and concepts of health and dental health

Health concept is a basic model or framework relating to how one should think about life, sickness and the world. The health concept determines health practice. If one considers health as a disease-free situation in which disease is limited only to physical abnormality; one's health practice will involve in curative processes. This view on health leads to the deep emphasis on disease treatment; and the certainty that health professionals have the most important role in people's health and that health depends on medical intervention and health professionals'responsibility. On the contrary, if one considers health in a boarder view that health is an equilibrium situation between humans and their environment, health practice will be emphasized on life style associated with social and ecological system. (Visalo, 2536). A new and comprehensive perspective on health will concern the components of human behaviors, environment, lifestyle, and health care organization (Lalonde, 1974).

What is the definition of good dental health? How can we sustain it? These are the questions I asked the dentists in my research. The answers will lead me to an understandaning relating to the concept of health and dental health of the dentists working in various health care services:

> "…good dental health should be with carious lesion or caries-free and healthy gingival or gum. To keep one's oral health, one should the responsibility of the owner himself or herself with effective tooth brushing and flossing, using fluoride to prevent caries , and regular visit to a dentist"
>
> (Dentist A, Private clinic)

> “I have worked in my clinic (private solo clinic) for 20 years and never seen even a person who has good oral hygiene. Some people have caries-free (no carious lesion) but have calculus formation. Thus, I have to tell them to see me at least twice a year, which is according to academic recommendation. Even those who take care of their oral hygiene, they are not able to do it effectively.
>
> (Dentist P, Private clinic)

From this study, the dentists working in private clinics tended to view that dental health depended on dental intervention and dentists’ responsibility because most of their practices were focused on curative. They viewed that the sense of good oral health was disease-free or caries-free. They tried to cure oral diseases and maintain good oral health by routine dental check-up.

On the contrary, the dentists in private hospitals viewed oral health in dental technological-oriented perspective:

> “Nowadays, people have better dental health than before. There are a lot of dental kits and technology for self-oral cleaning, developed last two decades, such as chemical agent in toothpaste and mouth rinse and chemical agent for calculus removal and bleaching agent. And there is an advanced dental technology to preserve oral health as tooth implantation and transplant. However, routine visits to the dentist is a better way to cure and take care of oral health”
>
> (Dentist Y, Private hospital)

A dentist working in a private clinic, who used to work in a governmental hospital, mentioned a correlation between curative and good dental health as follows:

> " I have worked in a district hospital for 3 years before moving to be a private dental practitioner. I can remember the definition of health I studies from Faculty of Dentistry that health is complete physical, mental, and social well-being; and health is biopsychosocial components. However, a better way for better oral health should concern physical oral health well-being. This is under control of our dental professionals. Another aspect relating to social well-being such as sweet snack consumption and milk bottle feeding in early childhood is out of dentists' control."
>
> (Dentist V, Private clinic)

Another dentist in a private hospital stressed the concepts of dental health as follows:

> " It is difficult to consider patients' social context in routine practices under private environments. It is possible to be concerned for only holistic care including promotion, prevention, curative ,and rehabitative care. The main task of dentists in private section is only cure and care for patients individully. A boarder task like public policy should belong to dentists in Ministry of Public Health."
>
> (Dentist E, Private hospital)

The dentists in private clinics and hospitals concentrated on individual health and oral health. They focused on teeth rather than health as a whole. On the contrary, the dentists working in governmental hospitals, cultivated with dental health policy from Ministry of Public Health had a more broader view on health. Oral health surveillance programs for primary school students, and oral health promotion and prevention programs for pregnant women and preschoolers were compulsory for the dentists working in public health care

services. They had to be concerned about oral health in other settings apart from clinical setting in the hospitals.

> " To promote good dental health, one should be concerned about both social environment and dental care. For example, if preschoolers in Day Care Centers have dental caries , called 'early childhood caries', from milk bottle feeding during sleep and sweet snack consumption, the dentists should expand their responsibility to educate the children' s families and care-givers. Only curative cannot prevent dental diseases in the children"
>
> (Dentist N, Provincial Health Office)

> "Health is complete physical, mental, and social well-being. I studied this definition of health from Faculty of Dentistry. But in practice, it is difficult to understand social well-being. Mostly, I focus on only physical well-being by treatment and mental health or psychological factors, such as pain and suffering from dental disease of the patients"
>
> (Dentist G, Community hospital)

> "Here (his hospital), the director divided all health staff into 6 health teams. Each health team has to be responsible for people's heath in holistic care. In my team, there is a dentist who is the team leader; and nurses and other health personals have to visit people in communities. This helps me understand health in a broader view. Health belongs to people not to professionals. However, I seldom visit the communities with the team because I have many patients waiting for my treatment, averagely 40 cases daily."
>
> (Dentist M, Mae Eye Hospital)

The dentists working in district hospitals defined the concept of health and dental health in a boarder view rather than the private dentists did. They viewed that health and dental health was not dentists' concern but the owner's. However, not all dentists working in the district hospitals had the same concept of health and dental health, depending on the context of their hospitals and experiences on health.

Although the general or provincial hospitals were authorized by Ministry of Public Health as community or district hospitals, they were positioned as the secondary heath care services, with many more specialists in oral care. Consequently, their concepts of heath and dental health are the same as those in private sectors.

> "Hoslistic in 'dental health' refers to dental care comprising promotion, prevention, curative, and rehabitation care. I am responsible for oral and maxillofacial surgery. Patients with mandible or maxilla fracture from car accident have to be given treatment and education about oral self-care. This is the holistic oral care in my sense."
>
> (Dentist I , General hospital)

From the study, it can be concluded that the concept of health and dental health of the dentists working in private sectors are different from those in government sector. The dentists in government health services understood the health definition because they were socialized through Ministry of Public Health's public health policy. It can be seen that almost all of them mentioned 'holistic health'. On the contrary, the dentists in general hospital defined dental health in the sense of 'comprehensive services'. It can be suggested that the dentists' concepts of dental health were disease-oriented with the focus on an individual. This conclusion is in accordance with an opinion of an instructor at Chiang Mai University's Faculty of Dentistry:

> "Today, dentists and dental students focus on dental technology. The training has an emphasis on instruments and dental materials rather than interaction with patients. The power to diagnose and cure dental diseases has sapped the power of care of the patients. I think that dentistry students focus on diseases rather than health and individual teeth and the patients as a whole"
>
> (Instructor K, Chiang Mai University)

4.1.3 Dentists and the etiological concepts of dental diseases

In the past, dentists accomplished the degree of Doctor of Dental Surgery with the surgical concept that treatment is to drill, fill and cut— to cure. During the past five decades, they have shifted their concepts from surgical (restoration) to medical (antibacterial) models. Dentists cannot treat dental diseases especially dental caries by restoring cavitated lesion while ignoring bacteria (Steinberg 2002). Nowadays, oral biology is more developed and dental caries is explained through remineralization and demineralization model.(Nikiforuk 1988)

It is needed to know the dentists' views relating to etiology of dental disease, basically on dental caries with the question guideline: Do the dentists explain caries based on the biomedical science model? How do they understand the relationship between dental caries and oral health promotion concept and practice? "Dental caries' is used to represent the dental disease in this study because it is the most important and common dental disease.

The dentists in private clinics and hospitals described the etiology of dental caries based on biomedical science model as follows:

> " There are 3 main causes of dental caries that are— host or teeth, bacterial flora ,and carbohydrate substrate. It is a classical model to understand the occurrence of dental

> caries. Acid is produced from the interaction of Streptococcus Mutan or bacterial plaque and sweet food or food substrate in the oral cavity. This acid gradually dissolves the enamel or outer surface of tooth and finally becomes a carious lesion."
>
> (Dentist A, Private clinic)

> "Acid from the production of Streptococcus Mutan and dental plaque is the major factor damaging the enamel structure."
>
> (Dentist Y, Private hospital)

Another dentist in a private clinic focused on patients' dental health behavior:

> " Poor oral hygiene is the major cause of dental caries. Dental plaque from food debris on the surface of the teeth is the resorvior for Matan Strep. to produce acid. Generally, efffective oral health cleaning, tooth brushing, and flossing are the best way to prevent caries. Some patients have to apply fluoride for caries prevention"
>
> (Dentist P, Private clinic)

The dentists working in private clinics and hospitals usually explained the strategies of caries prevention according to the explanation of the etiological concepts of dental caries:

> "Dentists know that dental caries is a preventable disease. Theoretically, the etiology of caries relates to 3 main factors: host, referring to teeth; agent, referring to bacterial or dental plaque ;and substrate food. Thus, the 3 ways to prevent caries are the 1st—eliminating the bacterial plaque

> by brushing and flossing teeth efficiently; the 2nd—increasing teeth resistance by appropriate fluoride application; and the last—reducing sugary food consumption."
>
> (Dentist B, Private hospital)

Most private practitioners also pointed out that dental prophylaxis or cleaning was the best way to prevent caries:

> "All dentists know the causes of dental caries. But the best way to prevent it is to have oral health check-up at least twice per year or visit the dentist every 6 months. For children aged under 14, fluoride application is recommended. Nowadays, fluoride is proven to be the effective agent for caries prevention. Fluoride in toothpaste and mouth rinse are the main channel to transform enamel structure from hydroxyappatite to fluoroappatite."
>
> (Dentist V, Private clinic)

It can be concluded that the dentists in private sectors could explain the etiological concept of dental caries with 3 parameters: host, agent, and food substrate. This concept is based on biomedical science model and focuses on individuals. They pointed out that the major cause of caries is acid from oral bacteria as Streptococcus Mutan interplaying with food substrate. They also mentioned the mechanical process of mineral exchanged in oral ecology. The oral health promotion practices go along with the explanation of the etiology of dental caries.

The dentist working in public health care does not have different views from those in private sector. They still mentioned the etiology of dental caries with the wording of dental plaque, Strep. Mutan. However, they involved in a boarder perspective of dental public health.

"Dental caries and dentists must be together. All dentists know the cause of dental caries that it is composed of 3 major factors : Strep. Mutan; sugary and sweet food or snack ;and oral health hygiene or behavior. Dental health policy and strategies mainly focus on eliminating the causes of dental diseases by promoting teeth brushing after meals, avoiding sweetened food or sugary snack ; and using fluoride toothpaste."

(Dentist K, Community hospital)

" The group at high risk of dental caries are preschoolers and school children. Last year, I carried out a dental health survey in the group of population in my district. It is found that 83% of the 3 yeared-old children and 70% of the 12 yeared-old children have dental caries. The main cause of the dental disease in both age groups is dietary consumption behavior. Most parents feed their babies with a milk bottle during sleeping and let them eat sweetened snack. Another cause is the children's tooth brushing behavior. Most cannot brush their teeth efficiently to eliminate dental plaque"

(Dentist C, Community hospital)

"Chiang Mai Health Office pushed out a dental health program called " Good teeth in both mothera and children (Mae Look Fun Dee)" for public health care especially the hospitals under the authority of Ministry of Public Health. The concept of this program is to reduce the causes of dental caries in children by focusing on pregnant women and parents. Oral examination and health education are provided to pregnant women at ANC. There is also an examination on babies' oral health of and dental health

> education to their parents in the Well-Baby Clinics to make them aware that milk feeding and sweetened or sugary food for children is main causes of dental caries."
>
> (Dentist O, Provincial Health Office)

The explanation of dental caries etiology of the dentists working in private and public health care is almost the same although the dentists in public health care were concerned about dental caries in a boarder view through dental health policy. Using dental health survey data or epidemiological tool to define the target population about caries, their concept relating to dental caries was, however, based on biomedical science model. Their explanation directly relates to the mechanism of bacteria and dental plaque. They also performed their practice focusing on an individual case even though they mentioned the population at risk and oral health survey. Not only the dentists in community or district hospitals, but also the dentists in general hospitals with more specialty training that explained the etiology of dental caries deeply based on academic information:

> " Dental caries is a bacterial infection caused by specific bacteria, Streptococcus Mutan. It is an infectious disease because it can be transmitted from a mother to her baby. Caries is also a reversible multi-factorial process, remineralization and demineralization process. So it cannot be treated by restoring cavitated lesion alone while ignoring bacteria and fluoride. In this hospital, there is the phrase constrast microscope that can show patients' oral microflora. It is used to stimulate their awareness in oral health care and eliminatation of their oral bacteria plaque."
>
> (Dentist F, General hospital)

Biomedical science concept is the dentists' base of the explanation about the etiology of dental caries. The dentists understood the concept of cariology and knew about caries by biochemical mechanism.

> " I have continously learnt about dental caries for 6 years during my dentistry education. In the operative(filling) class, the instructor focused on oral bacteria and dental material. My instructor in the Pedodontics was concerned for transferring of bacteria from mothers to their babies. In oral Health Promotion and Prevention Course, he stressed on dental health behaviors and dental health education to control dental plaque and create good oral hygiene. Moreover, fluoride application and pit-fissure sealant are main strategies for caries prevention, focusing on dental education"
>
> (Dentist N, Community hospital)

At the same time, the dentists reproduced the concept of dental caries by dental health policy. Most of the national oral health programs, such as Dental Health Survey, Dental Health Surveillance, Mother and Child Oral Health Program, and the Campaign of "No Sweet for Thai Children (Dek Thai Mai Kin Wan), were based on the explanation relating to biomedical science as a dentist in Provincial Health Office mentioned:

> "Dental Health Division in Ministry of Public Health provided dentists a training workshop "Plaque Control Program for Dental Patients". The patients visiting dental clinics have a chemical agent called basic fuscin to detect their dental plaque. Then a phrase constrast microscope with ultra oral camera is used to indicate oral bacteria or dental plaque. The practice is carried out to motivate

patients to be aware of dental plaque and bacteria in their oral cavity"

(Dentist O, Provincial Heath Office)

In summary, dentists in this study explained the etiology of dental diseases on the basis of dental caries by the biomedical science concept that interplays between host or teeth, bacteria or dental plaque ,and sugary substrate. The dentists working in private and governmental health care services were not different in describing dental caries and caries prevention strategies.

4.1.4 Dentists and oral health promotion and disease prevention concept and activities.

Health promotion is different from disease prevention that is—health promotion focuses on empowering people to take care of themselves and control risky environment affected their health whereas disease prevention focuses on curative with the attempt to apply all strategies to maintain good health as if health was a condition free from diseases (Brown,1985). Therefore, health promotion is health oriented whereas disease prevention is disease-oriented.

In the study, it is found that dentists were accustomed to the activities of dental health promotion and disease prevention as described in their routine tasks which can be summarized into 3 main tasks: dental health examination, dental health education, and application of fluoride and pit-fissure sealant. Most dentists working in governmental general hospitals and community hospitals used to gain experiences on dental health promotion and prevention programs as their routine dental tasks, such as dental health promotion and prevention activities for pregnant women in Antenatal Care clinics: oral health screening, dental health education, and oral prophylaxis with calculus scaling; and the promotion and prevention activities for primary school children in oral

health surveillance programs: oral health screening, tooth brushing after lunch ,and pit-fissure sealant for the first molar teeth.

However, the dentists in governmental health care services tended to define the dental health promotion and disease prevention concept similarly:

> "…prevention is an attempt to prevent the occurrence of oral diseases by sealant, fluoride application etc. Promotion aims to maintain good health and care of oneself which may be in the form of dental health education by pointing to their (patients') mouth and making them realizes oral hygiene…"
>
> (Dentist A, Community hospital)

> "Prevention and promotion cannot separate. Promotion of oral health is likely making people take care of their oral hygiene which is still in good condition whereas prevention is doing something for them,with sealant and fluoride. "
>
> (Dentist M, Community hospital)

> "…Health promotion is activities carried out in villages, people's houses ,and Day Care Centers whereas disease prevention is activities relating to defluoridation, reducing incidence of fluorosis or water fluoridation for caries prevention.. Sealant is also disease prevention."
>
> (Dentist K, Community hospital)

> " Dental health promotion is a form of advanced work— it is not carried out in the hospitals or health centers. For example, in an oral health surveillance program in primary school, we, instead of teachers, have to screen oral health of the students because the teachers cannot do it correctly. We have to educate school teachers and caretakers with

> oral health knowledge at the Day Care Center. As for the prevention, it is what to be done in the hospital, providing sealant and fluoride in the clinic"
>
> (Dentist S, Community hospital)

In additional to performing their routine tasks on dental health promotion and disease prevention, the dentists reproduced the concept of dental health promotion and disease prevention through training courses of Ministry of Public Health. A dentist in a community hospital stated:

> "Dentists have been trained by the Ministry of Public Health to carry out dental health promotion programs for pregnant women and early-perioded children. All detailed activities were written in the manual provided by Dental Health Division's staff in MOPH even those relating to how to educate about oral health to patients. All dental personals are trained to practice in the same way. Nowadays dental health education is the main strategy of health promotion while fluoride application and sealant are for disease prevention"
>
> (Dentist K, Community hospital)

> "I cannot clearly define the differences between dental health promotion and disease prevention concepts and activities. Most dentists have been accustomed to the 4 categories of dental health services that are— promotion, prevention, curative ,and rehabitation. Curative and rehabitative of dental care are easy to differentiate. Tooth filling, scaling, and extraction are curative while denture and orthodontics are rehabitative care. But the activities to promote dental health and prevent dental diseases are hard to define. Dentists do not care about knowing which activities are promotion or

> prevention. They perform their tasks according to the requirement of Ministry of Public Health and write their activities in the annual dental health report. However, I understand that health education is promoting and sustaining dental health whereas application of fluoride and sealant are prevention, preventing dental disease"
>
> (Dentist O, Provincial Health office)

Nowadays, Ministry of Public Health launches a new dimension of health promotion concept that is according to "Ottawa Charter for Health Promotion" of World Health Organization. Dentists in governmental health care services used to be informed about this concept. The Ottawa Charter for Health Promotion had an approach to health and emphasizes the importance of social structure and policy as key health determinants.

> "I know the new concept of health promotion. It makes a recognition to social environment and empowerment. At present , I still focus on promoting individual behavior change, primarily through the acquisition of dental health knowledge. I think that dentists, even dental nurses , are hard to change their role of curative for individual patients to promoting dental health for the groups of people at risk. They were educated in clinical setting. Although new generation dentists have been trained about the role of health promotion in community setting, their curative role is rather prominent and almost blends to their identity. Moreover, they focus on training in dental clinic rather than community during their dental education"
>
> (Dentist Q, Provincial Health Office)

> " I used to study and be trained from the Faculty with this concept. But I did not know how to apply it in the real situation where I have to give oral care service and to involve in the hospital accreditation (HA) activities. I had been trained with this concept in the Faculty for 6 weeks in the 5th year of my study and for 7 weeks in the 6th year but it looked like a community laboratory."
>
> (Dentist L, Community hospital)

> " I used to hear and know the factors effecting oral disease. One of them is bacteria and dental plaque. So I tell my patients to brush their teeth everyday for plaque removal. Another factor is sweet food, which is very difficult to resolve because it involves changing behaviors and life condition. The Ottawa concept is to develop personal skills and to control over the determinant factors for oral disease. I think that what I have done is only educating them on taking care of their oral hygiene."
>
> (Dentist K, Community hospital)

In conclusion, the dentists working in community hospitals could hardly define the concept of dental health promotion and disease prevention. They just defined them through activities. For example, they stated that health education was for dental health promotion but fluoride and sealant was for disease prevention. Although they had been informed and trained on the new concept of health promotion concerning the healthy public policy and social environment, they still stood on the same vision.

Almost all the dentists in private clinics and hospitals were curative-oriented in their clinical practices. They rarely had an opportunity to perform their role outside their workplace, except in the dental care mobile team in

remote areas as a volunteer. The vision of the private practitioners were different from that of the dentists in governmental hospitals.

> " Promotion is dental health education; prevention is scaling the calculus … just like this.."
>
> (Dentist P, Private clinic)

> " I do not know the concept of promotion and prevention. I just know that I have to tell people to take care of their teeth after I extract or fill their tooth. Maybe, the operation and education are called promotion and prevention "
>
> (Dentist A, Private clinic)

> " I do not know the Ottawa Charter for health promotion. I have never heard and learnt it before "
>
> (Dentist Y, Private hospital)

The practice of dental health promotion and disease prevention in the private clinics did not interest the dentists. The income from health promotion and disease prevention tasks was quite small. Curative care and rehabitative care were the main tasks. This is another reason why the dentists in private clinics and hospitals paid less attention to dental health promotion and disease prevention activities:

> "Most dentists in private sector do not give much value on dental health promotion and disease prevention because the income is quite small. Otherwise, we (dentists) have been intensively trained to be as a dental professional with excellent technical and clinical skills in treatment. So,

being a good clinician in treatment should be the identity of a dental professional."

(Dentist V, Private clinic)

The finding shows that the concept of health promotion and disease prevention defined by the dentists in government and private health services are not much different. Those working in private clinics and hospitals had curative focus. They differentiated between activities of oral health promotion and those of oral disease prevention by types of activities. For them, dental health promotion is just only educating oral knowledge to patients, without using dental material or substance in their oral cavity but disease prevention referred to some preventive substance, such as fluoride, pit-fissure sealant passing into patients' oral cavity . The dentists working in governmental hospitals who gained more experiences in dental public health practices used area setting to define the concept and practice in dental health promotion and disease prevention. For them, health promotion is the activities that have to be implemented outside the hospital such as in schools, villages but disease prevention is focused on dental clinical setting.

Finally, it can be concluded that:

- Dentists' dental health activities were curative-oriented rather than promotive and preventive. Their health concepts are far from that defined by World Health Organization which concerns not only physical health, but also mental health and social health. The dentists concerned themselves only with teeth and oral cavity or physical health. They would rather try to treat oral diseases for people. They lack skills in promotive and preventive care that needs the participation concept.
- The dentists explained the etiology of dental diseases ,especially dental caries, by the biomedical science concept which interplays between 4 parameters: host, agent, environment ,and time. And they used epidemiological knowledge to be the key role in constructing the distribution

and determinants of dental diseases. Epidemiology has worked closely with dental public health policy to set orders of dental health performance for dentists. The dentists focused on only the inspection on host (individual patient) and agent (oral microflora). As for environmental factors, they were interested on oral ecology or environment of oral biology but lacked their concern about a boarder view—social environment.

- The dentists could not clearly define the differences between health promotion and disease prevention. Their main activity for oral health promotion was dental health education, and for disease prevention was fluoride application and pit-fissure sealant in teeth at high risk. Promotion activities were implemented in schools, Child Care Centers or community setting whereas isease prevention was focused on individual responsibility in clinical setting. The dentists did not understand Ottawa Charter's health promotion that plays a role on lifestyle approach to health and emphasizes the importance of social structure and policy as key health determinants.

The following step is to examine how dental health system influences on supporting and reproducing medical science discourse on the oral health promotion concept and practice among the dentists.

4.2 Dentists' oral health promotion concepts and the context of dental health care system

As described in 4.1.1, routine tasks of the dentists in governmental and private health care service places were basically curative-oriented. The dentists in general hospitals and community hospitals were involved with activities to promote dental health and prevent dental disease rather than those in private health services. They were compulsory to perform the dental health promotion and prevention programs that had been set by the Ministry of Public Health. The main activities of dental health promotion and disease prevention activities in Chiang Mai are showed in the following tables. And the outcome of the activities carried out by dental personals in

the general hospitals and community hospitals is focused on the amount of patients attending at the health services. (Table 5 and 6)

Table 5 : Oral health promotion and disease prevention activities in general hospitals and community hospitals, Chiang Mai Province

Target group	Activities
Pregnant women at Antenatal Care Clinic (ANC)	- Oral health screening for caries and pregnancy tumor - Scaling the calculus - Dental health education for oral health care during pregnancy and after delivery - Advice on taking care of babies' oral health
0-5 yrs children at Well-Baby Clinic (WBC) and Day Care Center	- Oral health screening and free toothbrushes for toddlers and preschoolers - Oral health surveillance at Day Care Center - Oral health education for babysitters - Fluoride application for children at high risk of caries
6-14 yrs children at primary school	Oral health surveillance system consists of : - Oral health examination and screening - Fluoride application for children at high risk of caries - Sealant for first molar - Prompt treatment
15-59 yrs people in health service station (hospital & health center)	- Oral health examination - Dental health education -Fluoride application for patients with radiotherapy

Table 5 : Oral health promotion and disease prevention activities in general hospitals and community hospitals, Chiang Mai Province (cont.)

Target group	Activities
60+ years elderly people	- oral health examination - oral health education - advice on nutrition care - oral health screening for oral cancer
People in the village	- oral health survey by family folder - home visit and home health care for special cases

*Source: A dental health report of Chiang Mai Provincial Health Office

Table 6 : Coverage of oral health promotion and disease prevention for various target groups in Chiang Mai Province from 2000-2002 (%)

Target population	Percent coverage		
	2000	2001	2002
1. Oral examination and dental education for pregnant woman at ANC	92.1	90.8	62.4
2. Free toothbrushes for toddlers and preschoolers at WBC	92.3	55.2	50.12
3. Oral examination for school children	88.6	87.5	75.8
4. Sealing the first molar teeth for primary school children	49.0	34.6	29.2
5. Brushing teeth after lunch in primary school children	84.0	75.0	60.6

*Source: A dental health report of Chiang Mai Provincial Health Office

However, although dentists in the general and community hospitals were forced to implement dental health promotion and prevention programs as mentioned above, their main dental care tasks were still focused on treatment.

> "I believe that for most of the dentists who work in public hospitals, dental treatment is the main performance. Approximately, 70% of the dental care is tooth extraction, tooth filling and calculus scaling. Less than 10% is the sealant and fluoride application which are the main preventive dental care."
>
> (Dentist K, community hospital)

Since the Universal Health Care Coverage project (UC project) was nationwide implemented in 2001, activities concerning oral health promotion and prevention in Chiang Mai has been affected as a dentist in the provincial health office pointed to the impact of the UC project:

> "Although some dentists would like to develop activities of the oral health promotion and disease prevention according to the new role of health promotional concept, the UC project is one of the factors to slow down the oral health promotion and disease prevention activities of dentists who concern the new concept of health promotion. The UC project that emphasizes the health promotion is under the slogan, "Constructing is better than repairing". However, the public advertisement by the political party is campaigned for the curative direction with the slogan, "30 baht can cure every disease" or "30 baht for each treatment". Patients come to get dental treatments like a parade especially the denture care."
>
> (Dentist O, Provincial health office)

Data of the dental care services collected from 18 community hospitals in Chiang Mai (Table 5) show that the amount of patients utilizing the dental treatments in 2003 when the UC project was established in Chiang Mai was increasing.

Table 7 the number of cases of dental services in the 18 community hospitals, Chiang Mai Province.

Type of Treatment	**2001**	**2002**	**2003**
Extraction (no. of teeth)	30,392	33,433	36,670
Filling (no. of teeth)	22,603	24,118	25,208
Scaling (no. of cases)	6,771	10,291	12,587
Root canal Tx. (no. of teeth)	1,701	1,163	1,475
Oral surgery (no. of cases)	1,707	1,735	2,147
Periodontal Tx. (no. of cases)	1,095	747	1,061
Temporary plate denture (cases)	350	427	863
Complete denture	6	12	296

*Source: Dental health report of Chiang Mai provincial health office

Although the Universal Health Care Coverage project has given privileged benefits of dental care in the oral health promotion and disease prevention programs to the contractual hospitals, the situation of these activities are decreasing as shown in the table. The patients' requests for treatments and denture cares are the obstacles for dentists to do routine activities of dental health promotion and prevention. In addition, this will cause dentists to be more apart from the health promotion concepts and practices in the future.

"O.K, I accept the principle of the UC project or 30-baht project which emphasizes health promotion. In addition, this principle corresponds with my hospital's vision and concept of care. My director has proposed the family medicine concept for 3 year before the UC project. I (dentist) and my staffs (dental personnel) have ever implemented activities of the oral health promotion in communities according to the concept of communities' participation and empowerment. Also, a health promotional school was established. However, I have no time or opportunity to perform as before because I have to service patients especially for the denture services that take much time. Otherwise, the privileges of oral health promotion and disease prevention in the UC project that have been set up by the MOPH will not fall into the new concept of health promotion: it is disease-oriented. The main goal of the health promotion is to empower people to take care of themselves and control the risky environments that affect their health. The health promotion should focus on human abilities."

(Dentist H, Community hospital)

"Concerning activities of promotion and prevention which are set up in the UC project, I feel that it is not different from those in the past. Before the UC project, we had done such activities of promotion and prevention for pregnant women in ANC (antenatal care clinics), early childhood in WBC (well-baby clinics) and oral health surveillances in primary schools. For the UC project, it is good to make it clear that dental personnel have to do it. However, in real working life, we could not do because of the increasing number of patients' demands for oral cares…"

(Dentist S, Community hospital)

From concept to practice of the UC project was also questioned as the opinion of one of the instructors in the Community Dentistry Department of Faculty of Dentistry, Chiang Mai University.

> "Nowadays, the increasing number of patients in hospitals shows that the situation of oral health promotion and disease prevention is worse than before the UC project. The government has strongly pushed the curative direction and powerful movement in practice rather than the discourse of promoting health according to the philosophy of the UC project "
>
> (Dentist M, Community hospital)

In additional to the government, the UC project's procedure of oral health promotion and disease prevention is also another constraint. The activities focus on identifying risky target groups such as pregnant women, early childhood and pre-school children, school children and elderly. A senior dental staff in the provincial health office commented that

> "The activities of oral health promotion and prevention are directed to define risky cases by means of screening oral health and providing dental health education to reduce or eliminate risky factors. For instance, the dental health education that was provided to parents and guardians of 1 1/2-2 year-old children are brushing children's teeth twice a day, forbidding children from consuming sweet milk, forbidding children from sleeping with milk bottles left in their mouths and trying to reduce oral bacteria that could be transmitted from mother to children by avoiding using the same spoons and water glasses or blow food with mothers' mouths. All of the activities which are set up in

> the UC project are trapped in the biomedical explanation and the activities also focus on individuals without life contexts. I think that there are not any procedures of oral health promotion which are based on the new concept of health promotion. The activities of oral health promotion focus only on disease reduction. Therefore, we can call these activities the promotion of disease prevention. "
>
> (Dentist O, provincial health office)

I would conclude that the consequence of the Universal Health Care Coverage project (UC project) is another factor that stabilizes dentists to provide more curative care. The programs for dental health promotion and disease prevention in the UC project are still oriented to diseases and individual approaches. The rationale of promoting dental health programs is understood by the biomedical science knowledge as usual. Dentists reproduce the biomedical science discourse through the concepts and practices of the oral promotion and disease prevention programs.

4.3 The way how medical science discourse is constructed in dental education

For this part, I would like to present how the medical science discourse is constructed in the dental educational process. In case of a study area in the Faculty of Dentistry, Chiang Mai University, initial data was collected from dental curriculums and course contents of each subject. According to this data, the cultivating process of being dentists were analyzed under the obvious discursive practice.

A Brief History of the Faculty of Dentistry, Chiang Mai University

1952	Dental care unit was set up as part of the Out-Patient Department, Nakorn Chiang Mai Hospital.
1956	His Majesty the King authorized the establishment of Chiang Mai University as the first regional university in Thailand.
1965	Dentistry was first taught in the Faculty of Medicine with an initial enrollment of 2 students
1972	Faculty of Dentistry was established with 7 Departments: Oral diagnosis, Dental roentgenology, Periodontology, Oral surgery, Restorative dentistry, Prosthodontology and Pedodontology.
1976	Orthodontology was separated from the Department of Pedodontology.
1984	Community Dentistry was established as the ninth department.
1992	General Dentistry was the latest department.

At present, there are 10 Departments in the Faculty of Dentistry: 9 are concerned with clinical trainings and only one department is concerned with promotive and preventive training.

Since the establishment of the Faculty of Dentistry, there has been much development of the dental curriculum in 1991 because of the policy of compulsory dentists. The dental curriculum was changed from model 2:2.2 (The first two years for basic science, the later two years for pre-clinical science which were medical science and dental science and the last two years for clinical practices.) to model 1:2:3 (the first year for basic science and general education, the later two years for medical science and dental science and the last 3 years for skill training in clinics and community hospitals).

Table 8: The knowledge of various sciences in the dental education curriculum of Faculty of Dentistry, Chiang Mai University.

General science &Mathematics (27 credits)	**Social science (18 credits)**	**Medical science (42 credits)**	**Dental science (149 credits)**
Biology (8)	English (6)	Anatomy (10)	Dental anatomy (4)
Physics (8)	Humanity (3)	Physiology (5)	Dental pathology (4)
Chemistry (8)	Social science (3)	Biochemistry (6)	Dental microbiology (4)
Statistics (3)	Free elective (6)	Microbiology (6)	Oral biology (2)
		Pathology (4)	Dental material (3)
		Pharmacology (3)	Prosthodontics (14)
		General surgery (1)	Periodontology (5)
		Behavioral science (3)	Operative dentistry (7)
		Community medicine (1)	Pedodontics (3)
			Oral diagnosis (2)
			Oral surgery (6)
			Endodontology (2)
			Hospital dentistry (1)
			Orthodontics (4)
			Occlusion (3)
			Oral medicine (2)
			Dental anesthesia (2)
			Dental radiology (4)
			Crown & bridge (4)
			Research methodology (2)
			Dental epidemiology (2)
			Dental management (2)
			Dental public health (2)
			Oral promotion & prevention (3)
Lecture & Lab (27)	Only lecture (18)	**Lecture & Lab** (42)	**Clinical practice (62)** **Lecture & Lab (87)**

Source: Dental acadmic affair division, Faculty of Dentistry, Chiang Mai University

In the 1st year, dental students have to study various subjects which are called general education (Table 6). It consists of general sciences (27credits) and social sciences (15credits). Biology (8credits), physics (8credits), chemistry (8credits) and

statistics (3credits) are the basic sciences for dental students. While there are only 15 credits for understanding the social science: sociology, humanity, and English for communication.

A senior instructor interestingly commented on the dental education in the conference, “the Development of Dental Educational Curriculum” in1992 that:

> “The philosophy of learning the general education is to understand human life and social life and to enjoy their lives in real situations. The objective of the communication is to communicate with others, talk and understand with the same languages. However, in the dental educational curriculum, the communicative purpose is transferred to 6 credits of English subject. Studying the mathematic and scientific purpose is to make the students understand the philosophy of science in routine in order to enjoy their lives and understand the science related to nature and human life. However, studying 27 credits of science and mathematics in the dental education is to support basic medical and dental science in order to strengthen the dental profession."
>
> (Senior instructor P, Chiang Mai University)

The 2nd and the 3rd years of curriculum are called pre-clinical stage. The dental students are expected to have strong pre-professional training including excellent dental technical skills according to basic biomedical science and dental science. Human anatomy (10credits), physiology (5credits), biochemistry(6credits), microbiology (6credits), pathology(4credits), pharmacology(3credits) and behavioral science (which is focus on the psychiatry instead of health psychology) are the subjects that are under the control of the Faculty of Medicine. Dental students are cultivated and encircle with the logic of sciences and medical sciences, way of explanation of diseases. Dental students are understood and reproduced the logic of pathogenesis in human body that bacteria and virus are the main pathogens for human diseases through the way of education.

As for subjects concerning dental science, the dental students have to study both lecture and laboratorial practices of dental anatomy, oral histology, oral pathology, oral microbiology and oral biology. According to basic dental laboratorial techniques : prosthodontics and operative dentistry, much time has been allocated for practical training of waxing and operating teeth in phantom head laboratories. The dental students have to train their manual skills as if they were handicraft workers.

It is not surprising that the dental students would be fully trained in manual skills which are based on medical and dental scientific knowledge before they start providing treatment to patients, real human.

Baum (2003) commented on dental curriculum of the US that the dental students received poor training in science. Education of basic science for dental students has been achieved in name only. Generally, new graduates did not understand human biology because basic science was not made practically relevant to them. Too often the biomedical science and its advances were taught and described separately from clinical dental practices. In addition, the topics were often taught and assessed separately from dental contexts.

The curriculum of dental education in Thailand is not far different from in the U.S.A. as Baum commented.

> "Studying in the pre-clinical stage, I concentrated only on the dental science and dental laboratorial subjects. I truly confess that I did not understand how to apply or integrate almost all of the medical science subjects that I had studied from the Faculty of Medicine with dental science…"
>
> (Mr. S, 3rd year student)

In the last three years (4th-6th) of training in the clinical stage with 87 credits of lectures and laboratory classes, and 62 credits of clinical operation , dental students have been trained in both curative and preventive clinical skills for patients. Since

dental curriculum is handicraft-based emphasizing manual skills, the dental students have to start clinical training with simple cases in the 4th year of education and more complicated cases in following years, such as class I for cavity and class III for filling cavity. Also, in the 4th year, class II for cavity, class IV for cavity and class V for cavity which is more complicated in the 5th year.

The crucial challenge in dental education is still considered to be the development of appropriate dental skills especially clinical skills of all students. The dental students need to be trained in various dental clinical practices which are oral diagnosis, dental roentgenology , oral and maxillofacial surgery, dental restoration (dental filling, and root canal treatment), pedodontic, periodontic, prosthodontic (artificial teeth replacement or denture), community dentistry (preventive clinic and community training) and comprehensive dentistry. The clinical requirement of dental graduates is to be able to operate competently on their patients. Accordingly, the system of requirement is considered to be very important for the dental education. Every training dental clinic has set up minimum requirements for each training dental skill.

An instructor teaching in the pre-clinical science subjects commented on the dental education which focused on training skills that:

> "Due to the centrality of needs to develop dental skills of dental student, basic science and basic medical science education have often been relegated to a marginal role in dental education. There is no science of performing dental surgery, although dentists are surrounded by understanding and using high-tech equipments according to sophisticated physical and biological principle. For final analysis, the dental procedure might be accomplished by the skilled actions of practitioners. Dentistry is an art performance, and the nature of dentists is like craftsmen. However, dentists and dental professionals should be trained in both art and science"
>
> (Instructor D, Chiang Mai University)

Nowadays, the curriculum of dental education is still concentrated on manual skills in clinical settings. In addition, most of the dental students frustrate the requirement system.

Good & Good (1993) showed how medicine constructed its objects in the medical education. Medical education began to enter into the body which was the object manipulating skills and aspects of unending learning. Also, body was newly constituted as medical body which was distinct from the body which we interacted with in routine life. Besides, medicine was learned from the perspectives of individual cases, therefore individuals were the objects of medicine. In the learning process of medical education, medical students learned not only anatomy but also a certain objectification of the human body, a separation of soma from persona (Conrad, 1988).

The dental education is also not different from the medical education. Dental students start perceiving dental knowledge that was constructed by the course of dental anatomy, oral histology and oral microbiology. All of the dental science knowledge is basic to enter into teeth and tissues in oral cavity in order to know the structure of teeth which is different from others and the nomenclature or name of each tooth in the oral cavity. 32 teeth in the oral cavity have varied structures and names. That is a language of dental profession. The language is one of the symbols that dental students are quickly oriented to and is the pathway of dental students that dental teeth are distinct from teeth according to the viewpoints of lay people in routine life. A student in the 2nd year described the feeling of studying dental anatomy and histology:

> “Before I studied dentistry, I had known only the classification of human teeth from my secondary school that there were anterior teeth, canine and posterior teeth. Starting on the lecture of the dental anatomy, I was very surprised that 32 teeth in the mouth had different structures and nomenclatures. Even right and left anterior teeth had different details of structure and size. I tried to remember the width and length of each tooth in the laboratorial works.

> I had to craft a bar of wax to be a tooth in the laboratorial period. I had to remember the nomenclatures or the names of every tooth as the symbolic names, such as #11 was upper right anterior. I spent much time carrying out waxing 28 teeth in the laboratory and I have focused only on the teeth without patients for the whole year."
>
> (Miss C, 2nd student)

This is the way that shaped students to learn to see teeth in the dental world. It is different from the world of lay people. Good (1988) described that entry into the world of medicine was accomplished not only by learning the language and knowledge based on medicine, but also by learning fundamental practices which medical practitioners engaged and formulated reality in a specifically "medical" way. Specific ways of "seeing", "writing" and "speaking" were also included.

Dental students have to cultivate the way of "seeing" especially in millimeter scale in the prosthodontics laboratorial training. The students are trained to do artificial teeth (denture) by starting on arranging the artificial teeth on the wax base which has the same size and shape as gum.

> "When I first attended in class of complete denture, I had to arrange one tooth on the wax base and let the instructor check the correct position and direction. Once, one of the instructors told me that you should move this tooth 0.2 millimeter upright and 6 degree rotated to the right. I was shocked. Oh! Just 0.2 mm. and 6 degree. But now I can not estimate the distance in meters or even centimeters. I feel that it was too wide".
>
> (Mr. K, 3rd year student)

I have remembered that when I had studied the Endodontics (root canal treatment), both laboratory and clinical training, I was socialized that bacteria was the main pathogen of dental diseases. By the process of root canal treatment, I had to

clean and polish the root canal with dental files and medication it with chemical agent to sterilization the canal. I had to proof the root canal was bacteria-free by using microbiology laboratory. I had to use the paper point to dip into the root canal and put this paper point in the media agar plate for bacteria cultivation. The instructor would let me filling root canal with gutta percha dental material until my media agar plate was free of bacteria cultures. This process was made me to focus on the oral bacteria, the cause of dental disease and concern to the technique of sterilization for bacteria free or disease-free.

Throughout the 2nd and 3rd year of education, students studied dental disease of enamel, dentine and pulp including disease of tissue around the teeth, i.e. gingivitis or gum disease and bone disease. The students are trained to find out the disease of the oral cavity and the abnormality of teeth, gingiva and even the structure of faces. According to this cultivating process in the dental education, the dental students have narrow viewpoints as stated in an article of the community dentistry newsletter in 2002 written by a dental student in the 6th year:

> "…When I became a dental student, I was interested only in teeth and mouths. I could remember my patients' teeth rather than their names or their statures. I knew the nature of oral disease rather than names of the ministries. Even my friends and classmates were happier to focus on the diastema of an actor in the movie "Pearl Harbor" rather than the romantic story. I did not know why I focused on only small points. I always found myself paying attention to anatomical features of teeth of people whom I met rather than perceiving them as people with social characteristics".
>
> (Miss M, 6 year student)

In the process of pre-clinical stage in dental education, students learn only oral cavity and teeth as if it were something without a possessor. This study process neglected human aspect of dehumanization. Even in the operative dentistry class, (a study of the etiology of caries, the methodology for repairing and restoring the carious

teeth), students have a practical training in phantom head laboratories. The phantom head laboratory is the simulation for the students to practice their competency and care of the curative process. However, a student in the 3rd year has described that

> "According to the training of the phantom head laboratory, I did not feel that I was treating a patient. It was probably due to the requirement of the training course. Most of the students did not care the phantom head, therefore they turned the phantom head left and right carelessly. The phantom head was different from a corpse in the human anatomy study. I felt that the corpses were like our instructors; even they were dead bodies.
>
> (Miss E, 3rd student)

Dental students' ways of seeing and speaking are a reproducible continuous process in the dental education. The dental students are quickly oriented to proper use of the language of dental profession which is the symbol of the profession. Even the title, "Doctor" that instructors called the dental students in the pre- clinical stage is a tool of cultivating the normative structure of dentistry and strengthening the sense of individuals' special: one-to-one role obligations of the dentists. The dental students are socialized to be dentists only in the pre-clinical stage and accustomed to using the language of the dental profession without embarrassing.

> "When I started studying the nomenclature of teeth in dental anatomy class, I was slightly surprised at a lot of dental words which the instructors always repeat for the students' inspiration. For only a short period of time, I could speak and remember other uses of the language without embarrassing i.e. – It was an impacted tooth, or this was a carious tooth and had already an exposed pulp. I always accidentally call names of teeth with digital system

> which no one could understand, such as #36 meant the left lower first molar."
>
> (Mr. I, 2nd student)

I would like to conclude that the dental educational process in the pre-clinical stage shapes the dental students to learn the way of thinking, seeing and speaking in the dental professional pattern. Through the cultivating process in the lecture and laboratorial classes, the dental students could construct the teeth as if they were the objects for them to study without humanization or the teeth without owners. This is the basic concept of biomedical science that separates teeth from people. The process of dental education is too technique-oriented, and the dental students also focus on manual skills more than humane skills which should get through communicative skills. This dental identity can be obviously seen through the clinical stage of dental education.

In the 4th –6th year of dental education that is called the clinical stage, the dental students are proud of wearing a white coat or a white gown and providing dental services for patients as if they were real dentists. However, the faculty has set up 5 days of clinical orientation for the students as ritual time, time for rite de passage and time for transforming from the dental students to dentists.

According to the observation on the 5-day clinical orientation, almost all instructors have focused on the techniques of writing charts and minimum requirements that the dental students had to perform in each clinic. Every instructor described the clinical process and competence required for treatment rather than concern about patients' care.

> "You have to talk to patients that they could come to see you by appointment. You would not get the requirement if the treatment was not complete. You have to consider the socioeconomic status of the patients if they could pay for the service…"
>
> (Instructor A, in clinical orientation meeting)

Good and Good (1993) commented that competence and care were two themes that reflected the meaning of being a good physician. The competence is associated with the knowledge, skills, techniques and actions, whereas the care is related to attitudes, compassions and empathies. The competence is a quality of knowledge and skills, whereas the care is a quality of people, However, many felt that the competence had to be learned and taught, but the care was an innate human quality that should to be cultivated but not taught. One of the dental students in the 6th year who has ever read Good and Good's article said that:

> "After I had read the Good's article that you (researcher) have assigned, I strongly agreed with Good. Most of the instructors in the faculty focused on the competence of the students especially the technical skills for treatment. Some instructors laid particular stress on curative competence related to the future income after the students had graduated. As for caring, the instructors concerned patients' cares in the meaning of considering the economic status and cooperating behaviors of the patients…"
>
> (Miss B,6th year student)

The condition of dental education in the clinical stage still focuses on competency (manual skills) rather than care. On account of the nature of dentistry which requires manual skills, training course for manual skills has to set the sequence of priority. Consequently, clinical training for the 4th-year dental students is only simple cases and it is more complicated in the 5th year. In the last year (the 6th year) of training dental education, the dental students have to be responsible for comprehensive cases. For instance, students in the 4th year are only trained in scaling the patients' calculus, and performing a plaque controlling program which is the pattern of dental health education. After finishing the process of scaling, the students in the 5th and 6th year would provide more complicated treatment for patients, such as: root planning or gingivectomy. Based on natural condition of one's oral cavity, it is hard to find patients who meet a set of requirements for the 4th year students in simple

cases of dental treatment, such as mild calculus, small cavity on teeth, etc. In real situations, almost every patient has to see several dental students for variety of treatment until he gets a completed treatment. Thus, some patients came to see a student in the 4th year to have their calculus scaled and see a student in the 5th year on another day to have their impacted teeth removed and might see another student in the same year to have their complicated cavity filled. Through this process of clinical training, patients become objects for dental students, and this process is reproducible continuously until it becomes a normal situation for the instructors and dental students.

> "On the first day when I started my clinical training, I received one patient from the prosthetic instructor for tooth replacement as a temporary plate denture. I have completed the oral check-up and written the prosthetic dental chart. I could not insert the temporary plate denture for the patient until he received a complete root planning treatment. The root planning treatment was a complicated work and was not included in a set of requirements for me (the 4th year student), so I had to ask a senior dental student (the 5th year student) to operate this procedure. If I did not perform in this way, I would not get the requirement and the patients who had a requirement of temporary plate denture were rare."
>
> (Miss C,4th year student)

> "After I completed my patient's oral check-up and patient's charting for periodontal treatment (complicated gingival disease). This patient had deep periodontal pocket that I had to treat for my requirement. Although I made an appointment with him for the next visit of treatment, I could not do as I had planned because the patient had removed the impacted tooth from the oral surgical clinic on

the day before my appointment. I did not know that he had an appointment of removing impacted tooth before."

(Mr.Y, 5th year student)

"When I got 3 patients for root canal treatment, I have operated in the step of opening the root canal access (OCD) for the first two visits and this patient disappeared. I called for the second patient who had incomplete root canal treatment last year. Then, I finished this case and I got 4 steps of root canal treatment process in this case. I still lacked 2 steps of root canal treatment process that I should complete my requirement of root canal treatment. So I called for the third patient and operated only 2 steps which led me to complete my requirement, and I kept this case for referring to the dental students in the next year. I knew that I should complete the root canal treatment of the third patient but I have not done. I had to save my remained time for other treatments and other requirements. If I continued to treat the third patient, I might not pass this clinical training"

(Miss J, 5th year student)

"When I was training in the 6th year of dental comprehensive clinic, I felt that I was truly a dentist taking care for patients as total patient care or holistic care. I did not like the 4th and 5th year of training procedures. In this comprehensive clinical training, I could perform almost all of the oral care needed, both simple and complicated cases. However, it was still hard for me to communicate with my patients. I was cultivated to concern only my interesting point, teeth and mouth. In addition, I endured talking with my patients about other topics beyond dental field. Thus, I

> appreciated to talk with my patients especially about dental health education and advise them to take care of their oral health. I frequently stopped talking when my patients induced other topics, i.e.- social or political events. Normally, we (I and my patient) did not have much time for talking. We did it only before and after the dental treatment.
>
> (Miss L, 6th year student)

According to present dental education, dental students are learning to consider dental field under the fundamental construction of the objects for dentistry during the pre-clinical stage. Learning to think, write and speak in dental professional pattern is critical during the year of clinical training stage. The dental students are cultivated to focus only on disease rather than patients as a whole and concern the techniques more than patients' feeling. The dental students have their attitudes towards their patients as if they were the objects for the students to repair and restore the defect of teeth and oral tissue as carpenters repair houses.

Today dentists who come from the Faculty of Dentistry are enamored with the technological aspect of dentistry. The training has an emphasis on instruments rather than patients' cares. Besides, the power of treatment has sapped the power of promotion and prevention including the power of care.

Under the dental educational curriculum, not only dental students are trained in treatment, but promotion and prevention of oral care are also trained. Disease prevention clinics and periodontal clinics are the two main clinics for training. The dental students learn the techniques to screen for risky factors of dental caries and experience (DMFT score), bacterial test (streptococcus mutant count test, RD test), dental plaque score (PI score), gingival score (GI score and periodontal pocket score) and diet counseling (Four food group score). The main risky factor of oral disease is dental plaque and the advice for routine prevention is oral hygiene instruction or OHI of tooth brushing techniques, tooth picking techniques and dietary controls.

> "I have studied the promotion and prevention of oral health in the 4th year: the concept of health promotion and disease prevention, the strategy of dental health education and communication, risk assessment, fluoride and sealant. The application of oral health promotion and prevention(PxP) for various target groups, such as pregnant women, early childhood , school children, elderly and special groups.
>
> In the 5th year I was trained in the PxP in the community settings and clinical settings. In the clinical settings, I had to apply all of the PxP techniques to screen for risky factors of dental caries and caries experiences by means of various oral indexes. Also, I used the bacterial test (streptococcus mutant count test, RD test) to detect the high risky patients. In addition to the PxP techniques, I have learned to use the phaseconstrast microscope to motivate the oral health behavior of the patients.
>
> Concerning the community settings, day care centers were applied as a model of training experience. I did oral health examination for preschool children and planning for PxP activities in the center. Most of the activities were health education and tooth brushing program for babysitters and parents".
>
> (Mr. T,5th year student)

Faculty of Dentistry consists of ten departments. It means that each department has its own specialty as division of labor. The promotion and prevention of oral health belong to Department of Community Dentistry. Although this department is responsible for the promotion and prevention in the clinical and community settings, it is mainly oriented to communities rather than clinics which is individual.

A dental students who is studying the promotion and prevention of oral health in the 4th year of dental education tries to describe the differences between concepts and activities of prevention and promotion that

> "DPPR 483 is a 3-credit course concerning promotion and prevention of oral health in the 4th year of dental education. I can not clearly differentiate the concept of promotion and prevention. I think that the health promotion concepts and activities are studied in the 1st semester and the disease prevention is studied in the 2nd semester. As for the concepts and activities of oral health promotion, I have learned the Ottawa Charter of Health Promotion, dental education tactics and strategies, and theories of health behavioral changes, whereas the oral health prevention covers the risk assessment of oral disease, fluoride application, sealant, chemical and mechanical tools to remove dental plaque. Therefore, Fluoride, sealant or other technologies to prevent oral disease should be classified as prevention or disease prevention. However, when we concern health according to health education, it should be health promotion."
>
> (Miss C, 4th year student)

> "As for the Ottawa Charter, the health promotional concept that I have learned from Department of Community Department, I could understand it, but I could not know how to apply it to my patients in the clinical settings. I only studied dental knowledge."
>
> (Miss. D, 4th year student)

A dental student in the 5th year who has been trained in activities of promotion and prevention for 6 weeks stated that:

> "Throughout this sex-week period, I have been trained to practice in two settings: a school setting for health promotion and a clinical setting for disease prevention. In the school setting or outdoor setting, we started with community diagnosis by means of oral epidemiological model, oral health survey to solve oral health problem of school children and planning an implementation to solve each particular oral health problem, such as training the children to brush their teeth properly and dental health education for children, teachers and parents. Concerning training of disease prevention in the clinical setting, each student got one patient and used all of dental kits in the clinic to detect and assess the risk, such as bacterial test, RD test; dental health index and four food group score (to detect the high risk of sweet food). After that, the students have tried to use the fluoride and sealant to prevent caries for patients. "
>
> (Mr. M,5th year student)

In clinical training courses, the dental students have to start with using the detecting techniques for periodontal disease and perform oral hygiene instruction for patients before each treatment visit. One of the dental students in the 5th year stated that:

> "For the clinical training, only the instructors for periodontal disease concerned oral hygiene instruction and plaque control program and it was counted to be a requirement. However, for other instructors, such as instructors of root canal treatment checked only the root canal process and considered only the teeth, whereas

> prosthodontic instructors concerned only dentures and occlusions."
>
> (Miss V,6th year student)

Glanz (1997) purposed that the central concern of health promotion and health education is health behaviors how to bring about changes and how to develop the techniques that change behaviors. Department of Community Dentistry has also taught the theories of health behaviors and various techniques to change behaviors, such as health belief model, transtheoritical model, communication theory of health, social learning theory and self efficacy. However, in real situations of clinical training, it is problematic in clinical contexts.

> "It is very difficult to apply theories of health behaviors to change patients' behaviors in the clinical training on account of the limitation of time. I have to concentrate on my performance and am afraid of incomplete performance in each visit. Even listening to patients, I really feel endurable. The items of oral hygiene instruction and plaque control program are done only in the period of periodontal care."
>
> (Miss N,5th year student)

When I asked the dental students about the etiology of dental disease especially dental caries, most of them explained the epidemiological model which was based on medical science knowledge.

> "I have learnt the etiology of dental disease from the second year of the dental education to the last year of the curriculum. In the operative class, the instructors concerned oral microorganism: streptococcus mutant that is the main cause of caries. In the pedodontic class, the instructors stressed the transfer of streptococcus mutant from others to

babies. In the promotional and preventive classes, the instructors concentrated on behaviors and effectiveness of brushing teeth in order to remove plaque and microorganism and applying fluoride. Additionally, I have trained to apply plaque control program for patients in dental clinics by means of using phase contrast microscope and ultra oral camera to motivate the patients to have proper oral health behaviors."

(Miss I,6th year student)

"If someone asks me about dental caries, I still remember the four circles which represent the parameter involved in the carious process that are host or teeth, microorganism or streptococcus mutant, substrate or cariogenic food and time because every instructor who talks about caries has to refer these four parameters.

(Mr.T,5th year student)

Accordingly, it means that streptococcus mutant, fluoride sealant, cariogenic food are the main concept perceived by dental students. The hypothesis or concept of the etiology of dental caries that is explained by these four parameters: host, agent, environment and teeth are the biomedical science model. It is the knowledge that is proved by the biomedical science process and can explain the occurrence of dental caries of everyone in the world. It looks like only one fact to explain the etiology of caries.

Oral epidemiology is the main subject to study community dentistry or dental public health in the Faculty of Dentistry and to study community medicine in Faculty of Medical Science as well.

> "For the first time, I have learnt 2 credits of oral epidemiology under control of the Department of Community Dentistry in the 3rd year of education. After that, I used methods of epidemiology to survey the oral health status of school children in learning period during the 5th year of dental education. However, epidemiological concept and methods are also filled in several departments, such as, Department of Periodontology which teaches epidemiology of periodontal disease. Department of Oral Maxillofacial Oral Surgery is responsible for epidemiology of oral cancer and Department of Pedodontology stresses the epidemiology of caries for children. Therefore, I had to remember and understand the distribution of dental disease that was person, place, time, host, agent and environment for the determination of dental disease. I have also trained the methodology of oral health survey, oral health index and the analysis of the survey data from the Department of Community Dentistry. I think that epidemiology would be the main concept and method for me in the future: after my graduation.
>
> (Miss K,5th year student)

In addition to the biomedical science model to explain the occurrence of dental caries, biomedical science model or four parameters of etiology of caries stresses the caries of individuals, whereas the epidemiological model can explain the prevalence of caries in wide perspective. Both biomedical science model and epidemiological model are explanations of the etiology of dental caries by means of 4 parameters or factors that are host, agent, and environment of the individual oral cavity. They can explain causes of caries with the prevalence of the problem and distribution of the caries to population. According to the host factor, not only teeth are related to the host

as demographic factor, but there are also other factors, such as age, gender, mother's age, socioeconomic status, occupation and income of parents or population.

Not only the clinical performing time is a factor of oral health promotion and prevention in the clinical training, but the cost of some preventive services, such as sealant comparing to other services is also a factor.

> "I tried to persuade patients to prevent carious teeth with techniques of pit and fissure sealant, but the cost of sealant is 100 Baht per tooth, whereas the cost of amalgam filling is 60 Baht or 80 Baht for filling with composite"
>
> (Miss C,4th year student)

Communicative skill is another problem for dental students. The causes could be: Firstly, the cultivation for dental students in the dental education is based on the medical science or biomedical concept which separate teeth as objects from people. Secondly, learning language and knowledge of dentistry is a fundamental practice that dental students engage and formulate reality in a specific "dentistry" way. Specialized ways of "seeing", "writing" and "speaking" are also included.

Besides, most of the dental students have to focus on treatment rather than prevention since the curative process is in their hands, and they are able to manage it. However, the preventive and promotional process needs good communicative skill. Dental health education is based on the communication and the relationship between dentists and patients.

> "Probably, the dental educational curriculum which focused on teeth, oral tissues, oral disease and abnormality, and dental laboratories was time-consuming. I frequently slept after midnight due to dental laboratorial works and read the dental articles in order to prepare for examinations. It reduced my curiosity. I was willing to be interested only in the field of dentistry. That is why it is

> hard for me to talk with my patients for a long time. I really told you that I was endurable. I felt happier to describe the etiology of dental caries and preventive techniques. Since the clinical time is limited, I nearly stopped talking because I worried over my operation that could not be completed in that visit"
>
> (Miss L, 6th year student)

This is the feeling of a student in the 6th year about her communicative skill and another student in the same year:

> "I know that patients prefer the dentists who had good communication, competent operation, and good relationship between dentists and patients. However, most of the skills that I trained were technical skills, manual skills, and curative skills. I have never learnt how to do it. Maybe it is a skill that needs common senses that engage interpersonal language. Some instructors suggested the way of talking with the patients like you were talking with your friends, but I think it is not the same at all…"
>
> (Miss B,6th year student)

In the Faculty of Dentistry, all courses emphasize the technical aspects of dentists: screening, diagnosis, treatment and intervention. The dental students must be trained to be proficient dentists and focus on techniques and instruments rather than patients' care. In addition, due to the centrality of the need to develop dental treatment of students, promotional and preventive skills have often been regulated to be a marginal role in dental education. Requirements still represent competent operations, especially manual skills of the dental students. All of these evidences make the dental students spend much time on carrying out the treatments for their patients in clinics and laboratories. In addition, they focus on individual teeth rather than the patients as a whole.

CHAPTER 5
DISCUSSION / CONCLUSION AND RECOMMENDATION

DISCUSSION

Brown (1985) explained an aspect of health promotion which was different from disease prevention. The disease prevention had an emphasis on disease and tried to apply all of the strategies for curative care and maintained health as if health were a situation without disease. In addition, it tried to eradicate risky factors and changed undesired behaviors of individuals, whereas the health promotion referred to activities which tried to control risky conditions of health by means of the social movement and also empowered people to take care of themselves and control risky environments that affected their health. Therefore, the health promotion was focused on human, whereas the disease prevention was focused on disease.

It was found in data of this study that dentists' concept on oral health promotion was still far from the concept of the health promotion as stated in Brown's explanation. Since dentists' activities of the oral health promotion and the disease prevention in Chiang Mai were focused on disease and considered only risky groups, they also could not define the philosophy of the health promotion and the disease prevention. They only recognized that the health promotion was just only dental education and its activities were implemented in communities. On the other hand, the disease prevention had an emphasis on individuals' responsibilities in clinical settings and filling some preventive substance such as, fluoride, pit and fissure sealant into the oral cavity.

Thorogood (1999) proposed that a new concept of the health promotion should reduce the monopoly of professionals in health care units and give more opportunity for lay people and non-professional groups to reconsider the definition of health and illness. In this study, the dentists in Chiang Mai could not show any performances that empowered people to recognize their health. Merely, cognition of patients was

reinforced by routine dental health education. The dentists provided the same matter of dental health education for every risky patient, for instance, matters of the dental education for the pregnant women were:

- Pregnant women tend to have gingivitis (bleeding gum) on account of dental plaque and hormonal change. They should keep their mouths clean by means of brushing their teeth after meal in order to remove the dental plaque. Since the dental plaque or food substrate causes the acid, this acid would damage their teeth.
- Pregnant women should rinse their mouths after vomiting resulted from morning sickness, because the acid from the stomach would harm and erode their teeth. Finally you would have dental caries.
- After delivering, mothers' glasses and spoons should be separated from babies' in order to prevent mothers from transmitting oral bacteria especially streptococcus mutant to their babies. Mothers should not kiss their babies' mouths as well.
- Babies' mouths should be cleaned by means of clean cloth before going to bed and milk bottles should not be left in babies' mouths during sleeping.
- Eventually, pregnant women should visit dental clinics in order to screen for dental caries and gingivitis, and cure their dental diseases for healthy oral cavity.

For the dental health education, dentists in Chiang Mai recognized the cognitive feature of dental professional culture as stated in the critique of Greenish (1995) that:

> "…the most of the dental practices still focused on the individual patient and most of the cognitive focus of education was on the biological basis of disease and on the clinic tools to interview in the disease process of individual patient."
>
> (Greenish ,1995)

According to this study, it was also found that dentists in Chiang Mai could explain the etiology of dental disease especially dental caries by means of the biomedical science model which was interplay between four parameters: host, agent,

environment and time. This model was used individually. On the other hand, the large scale, such as communities and the epidemiological model was served to explain the dental caries in distribution (person / place /time) and perspectives of determinants (host / agent / environment). This finding was consistent with the argument of Lone Schou (1998) that most of the oral health promotional activities were strongly influenced by the biomedical model or epidemiological model and focused on individual behavior.

From this study, dentists' activities to solve dental public health and control diseases in Chiang Mai were mainly dental health education and providing the curative care in the dental health service units. The finding were still not in accordance with Mc Keown (1979)'s new concept of public health. He stated that factors to solve public health and control diseases were environments, socioeconomics and behaviors, not the treatment and curative care. This finding was also consistent with Tavlov and St Peter (2000) that the total ecology was the most influential factors for human health. Other factors were human behaviors and health services. In addition, the least influential factors were heredity and biology.

Lone Schou (1995) suggested that two main principles of oral health promotion to achieve good oral hygiene were namely the area of health public policy, i.e. the building of oral health promoting policies and the development of personal skills in relation to oral cleanliness. This suggestion was one of the five principles of health promotion according to the Ottawa Charter on Health Promotion. Nevertheless, the dentists in this study knew only the name of Ottawa Charter but they could not understand and apply these principles, although they studied and were trained from the Faculty of Dentistry.

Eventually, I would like to conclude that both concepts and practices or performances concerning the oral health promotion of the dentists in Chiang Mai were based on biomedical science model which explained the mechanism of dental disease, reductionism and compartmentalization. Dental diseases, such as dental caries could be explained by biochemical interaction between oral bacteria and food substrate and by the reduction of human total ecology to the ecology of oral cavity. Otherwise, this evidence was compartmentalized by means of separating mouths from people and society where they lived.

All of the evidences of oral health promotional concept and practices of dentists in Chiang Mai that were found from this study were in accordance with the study of Nettleton, S. (1998). She stated that:

> "As for present dental education, dental students are learning to consider dentistry field under the fundamental construction of the object for dentistry during the pre-clinical stage. Learning to think, write and speaking in dental professional pattern is critical during the year of clinical training stage. Dental students are cultivated to focus only on diseases than patient as a whole, and concern the technique than patient feeling. Dental students have their attitude towards their patients as if they were the objects for students to repair and restore the defect of teeth and oral tissue, as carpenters repair houses. Today dentists who come from the Faculty of Dentistry are enamored with the technological aspect of dentistry. The training gives an the emphasis on instruments rather than interactions between patients and dentists, and the power of curative has sapped the power of promotion and prevention, including the power of care."
>
> (Nettleton, S. 1998).

However, the concept of oral health promotion was influenced and reproduced by the biomedical science discourse during the dental educational process. Dental students had to study various subjects concerning general science, such as physics and chemistry in the first year and they also studied basic medical science and dental science, such as microbiology, pathology, physiology, biochemistry, etc. All of the subjects in dental education that dental students studied were influenced by the discourse on biomedical science. This discourse was reproduced in the process of dental education in the Faculty of Dentistry. Both scientific and medical lecture and laboratory classes, such as biochemistry, physiology, microbiology, anatomy, histology were the discursive practices to stabilize the explanation of biomedical science of dental diseases.

For instance: dental plaque is a crucial factor which affects dental caries. Dental students studied the dental plaque in several lecture classes. Also, they studied operation, periodontic, pedodontic, oral health promotion and prevention, and described the mechanism of the dental plaque and dental diseases through the biomedical science. The dental plaque is formed by the carbohydrate food substrate and interacts with the oral bacteria under the proper oral environment. Accordingly, acid is produced and damage the structure of enamel and dentine of teeth. The structure of enamel is hydroxyappatite in OH- group, whereas the acid is in H+ groups, therefore the H+ tries to weaken the enamel structure by subtracting the OH- from the enamel. This process is called demineralization.

In clinical settings, dental students were trained to use the “basic fucin” to stain the dental plaque. The dental plaque that was stained would turn to be reddened and could be seen clearly. Every patient had to have the dental plaque stained in order to be able to check up their oral hygiene by the dental students before treatment. Therefore, staining the dental plaque was one of the discursive practices of biomedical science discourse on the oral health promotion and disease prevention.

Dental students also provided the dental health education to patients by explaining the mechanism of dental plaque and dental diseases and the reasons of brushing their teeth twice a day to remove dental plaque. This was another discursive practice of biomedical science discourse and it was reproduced during the dental education in the Faculty of Dentistry.

In conclusion, dentists’ concept of oral health promotion in Chiang Mai was based on biomedical science discourse, and the discursive practices were constructed and reproduced all the time during the process of dental education. Both the process of dental education and the dental health policy in the health care system could reproduce the discursive practices. Routine oral health care and dental health education of dentists in the health care system were encircled by the explanation of biomedical science. Nowadays, the Universal Health Care Coverage Project or the UC project which has been implemented in Chiang Mai since June 2001 set up privilege benefits of oral health promotion and disease prevention activities: oral examination, dental health education, oral health instruction, fluoride supplement and pit –fissure sealant for high risky groups. All of the oral health promotion and disease

prevention activities in the UC project which was shown in table 1 were the same concept and performances as found in the process of the dental education in the Faculty of Dentistry, Chiang Mai University. Thus, it meant that the oral health promotion and disease prevention activities in the UC project were the discursive practices which reproduced the biomedical science discourse.

Finally, this study concluded that biomedical science discourse on dentists' concept of oral health promotion in Chiang Mai was constructed and reproduced during the process of dental education and it was reproduced in the oral health care system as well.

The definition of heath promotion according to the Ottawa Charter is a process in which the central important objective is to increase people's control over their health and issue impact on it. (Lukana, 1996). It is challenging for social science dimension to propose a new concept of health promotion. The new concept of health promotion reduces professionals' monopoly in health care units and gives lay people and non-professional groups more opportunity to reconsider the definition of health and illness. (Thorogood, 1999)

It was found in data from this research that dentists' concept on oral health promotion were still far from the concept of health promotion as described above. The oral health promotion and disease prevention activities of dentists in Chiang Mai were disease-focused and considered only risky groups. Most of the activities were based on the biomedical science framework: mechanistic, reductionism and determinism. Not only the policy of the Universal Health Care Coverage project, but also the payment system of oral health promotional activities under this project were the factors which affected the oral heath promotional concept and dentists' activities. The main reason that should be considered was the cultural system. There were three cultural systems which affected the oral health promotion and prevention concept and activities. These three cultural systems overlapped with each other and had a complex interrelation.

I would like to describe these three cultural systems which encircle the dentists' concept on oral health promotion. There are:

1. Biomedical science cultural system
2. Dental professional cultural system

3. Health bureaucratic cultural system

6.1 Biomedical science cultural system

Almost every country in the world has a basic framework for health management based on paradigm of science. The paradigm of science as a culture is basically Newtonian physics. The process of biological and biomedical science has undergone through the same rules of science, therefore biomedical science is as a cultural system as well. Based on physics knowledge, it was extended to chemical knowledge, biology and biomedicine.

The Newtonian physics is a basic principle for classical science, health science as well as biomedical science. The Newtonian physics consists of three concepts: (lipton B.,2000)

1. Materialism is the ideal belief that human body is composed of matter and only matter controls biological process in the body.
2. Reductionism is the belief that human being is just a sophisticated machine and can be understood only by reducing them to smaller separated parts.
3. Determinism is the idea that every phenomenon has determinants.

“Newtonian view of health” considers chemical agent as an instrument used to intervene in the biological process in order to cure diseases. The way of biomedical science to think about life, disease, illness and the world is attached to health personnel. Thus, it could be considered as a cultural system surrounding the concept and activities of health personnel.

Dentists’ concept on oral health in Chiang Mai fell into the trap of biomedical science cultural system. Their ways of thinking, acting and believing were mechanism, reductionism, individualism and determinism. If we consider dental cavity as an example, dental caries would be explained that it is a disease of mineralized tissue of teeth, namely enamel, dentine, cementum and pulp, and is caused by the interaction of oral microorganism and fermented carbohydrate or food substrate. (As shown on diagram 1)

Under the biomedical science cultural system, dentists understand that dental caries of every person is the same evidence which emerges from the same determinants that are oral microorganism and food substrate. The normal ways of preventing caries for everyone are also considered: eliminating the determinants by brushing teeth after meal, increasing the resistance of teeth by enameling fluoride and sealing the deep pit and fissure with a resin or sealant. These are mechanism and reductionism approaches.

Robinson M (2003) proposed a different meaning of traditional health promotion and holistic health promotion that:

> "Traditional health promotion was based on Newtonian physics which focused on disease prevention, and its main objective is to identify and eliminate biomedical risky factors for disease. Health promotional activities, especially health education are to reduce risky factors by applying various techniques for changing and controlling behaviors. Holistic health promotion was based on Quantum physics, which focused on health. In addition, its main objective was to emphasize the interrelations among spiritual, biological, psychological and social factors which were critical to health and healing. Health promotional activities had a main emphasis on supporting and encouraging people to change and control their own health."
>
> (Robinson M ,2003)

Consequently, it could be judged that the oral health promotional activities of dentists in Chiang Mai were performed according to the concept of traditional health promotion which was proposed by Robinson, for instance: the main objective of screening oral health and scaling calculus for pregnant women was to eliminate the biomedical risky factors, such as streptococcus mutant (oral bacterial flora) and dental plaque which could be passed down to their babies. Moreover, chemical techniques, for example fluoride and mechanical techniques, such as brushing teeth were provided to changing and controlling mothers' behaviors. In order to reduce oral bacteria

transmission from mother to children, mothers were advised not to use the same spoons and glasses and not to blow food with mothers' mouths. All of the oral health activities were based on the biomedical science cultural systems that were mechanism, reductionism, individualism and determinism.

Public health is the science and art of preventing disease, prolonging life and health through organized efforts of society. (Downie and Tanahill, 1990) Epidemiological model is applied as the main strategy to study the distribution and determination of diseases. The concentration of health and disease is transferred from individuals to groups of population, not the total population from society. They are only average men as Margaret Lock (1988) has cited:

> "…the very conflict of "disease" entity is based on the abstraction of disease from individual patient, biological or theories of "stress" are based on "hypothetical average man" abstracted from society."
>
> (Lock ,1988)

Surveillance is one of the activities in the epidemiological model for detecting the occurrence of diseases. Surveillance moves attention from pathological bodies to every member of population. (Armstrong, 1999)

It could be said that oral health surveillance in the oral health promotion for school children and screening oral health for other target groups are performed in the biomedical science cultural system that is disease-oriented by means of detecting the risky factors and risky groups of population; however, it is still an individual approach.

From the result of this research, most of the dentists were confused with the concept of health promotion and disease prevention and could not differentiate from each other. Most of the names of oral health programs which were proposed by Ministry of Public Health began with 'the oral health promotion', such as:

-The oral health promotion for pregnant women in the project of antenatal care units

-The oral health promotion for 0-to-5-year-old children in the project of well-baby clinics

-The oral health surveillance and promotion for school children

-Etc.

> "I could not define which activity was promotion or prevention. I had studied from the faculty that sealant was disease prevention program. But when the Dental Public Health Sector, Department of Health, MOPH had lunched an oral health promotion program for various target groups of population, it confused me. Maybe the activities which were performed in the clinical settings were called prevention and the oral health promotional activities should be preformed in other settings, such as antenatal care units, well-baby clinic, day-care centers and school settings."
>
> (Dentist K, Community hospital)

Thus, it means that most of the dentists are not concerned with the concept of health promotion and prevention activities, but they are interested only in techniques of the activities. Promotion is health-oriented whereas the prevention is disease-oriented. All of the disease prevention techniques even curative and rehabilitative techniques are the tools for promoting oral health and empowering people to change and control their own health.

In conclusion, oral health promotion concepts and activities of dentists in the health care system in Chiang Mai were based on the biomedical cultural system which reflected that:

-Teeth were considered as a machine.
-Bacteria or dental plaque was considered as determinants.
-Patients were considered as an individual without contexts.
-Oral health education was considered as tools to change behaviors.

Biomedical science cultural system did not surround only the health care system, but also dental educational system. Dental students' clinical perspectives focused almost entirely on diseases and patients as objects for students to detect and cure. They instilled many discourses of dental profession in accordance with the biomedical

knowledge and dental techniques. As mentioned above, biomedicine represented the reductionism, mechanism and the mind-and-body dualism as well.

In dental educational process, dental students were shaped by learning how to see (the oral disease and oral tissue), and learning how to cure (treatment techniques) more than how to taking care. The dental students studied the etiology of dental disease in the epidemiological model which was based on biomedical science and focused on treatment rather than promotion and prevention. The new concept of health promotion by Ottawa Charter was marginalized in the dental education. Although the Faculty of Dentistry, Chiang Mai University was praised for the training process of community action on oral health promotion which was managed by Department of Community Dentistry, most of the dental students from Chiang Mai University still focused on traditional health promotion and health education.

Nowadays, Newtonian physics model which is the root of biomedical science has been shifted by Quantum physics. Materialism was replaced by energism concept, reductionism was replaced by holism, and determinism was replaced by uncertainty. (Lipton B., 2000) However, health paradigm and dental health are still attached to Newtonian science and reductionism. Medical doctors still focus on a special part of body, organ, and cell, and they try to discover determinants. In addition, dental profession still focuses on teeth and dental plaque. Mind and environmental contexts are not taken into consideration. Medicine and dentistry are totally based on biomedicine, (Visalo P., 1989), whereas social and behavioral issues are only a tiny part of medicine and dental educational curriculum. (Good B., 1994)

Based on Quantum physics paradigm, dental caries could be explained by the dynamic process of remineralization and demineralization of the interaction of exchanging mineral elements in composition of teeth. This explanation describes how materialism is replaced by energism. Health and illness is not constructed from the germ theory, but contributed from the context of everyday life (Helman C.,1983) , therefore dental diseases are also not constructed from the bacteria and streptococcus mutant. Concerning the context of everyday life of human, it is a holistic approach in Quantum physics paradigm. Everyone has his/her everyday-life context which is dynamic. It means that the determinants are uncertain and vary in one’s dynamic context.

In conclusion, dentists' concepts of oral health promotion in Chiang Mai were in the cultural system of biomedical science. The ways of thinking, seeing and doing were based on mechanism, reductionism, individualism and determinism.

6.2 Dental professional cultural system

> "Professions begin when people start doing full time job that needs doing. Professions establish the professional association that has explicit membership rules to exclude the unqualified. They change their names, in order to lose their past, to assert their monopoly and most important, to give themselves a label capable of legislative restriction. They set up a code of ethics to assert their social utility, to further regulate the incompetent, to reduce internal competition. They agitate politically to obtain legal recognition, aiming at first to limit the professional title, and later to criminalize unlicensed work in their jurisdiction.
>
> (Abbot A., 1988)

Thus, the profession has its own professional life as a cultural system. It constructs its world. Dental professionals also have their world and cultural system as well.

In this part, I would like to analyze the field of dentistry according to Pierre Bourdieu's concept of cultural capital why dentists are not interested in oral health promotion and prevention under the cultural system of dental profession.

Dental profession is one of the health scientific professions that dentists with valued cultural resources are able to convert to economic capital. Dental educational institutes are the institutes that socialize the individuals (dental students) and develop the patterns of value, taste and behavior that are called habitus (Bourdieu P., 1993).

Dental professionals could convert their cultural capital to economic capital. This evidence could be seen from the high turnover of the dentists from public sectors to private sectors, especially the private sectors in urban areas where dentists can earn more income and improve their life styles according to their habitus.

Bourdieu (1995) analyzed the field of science in the article “the specificity of scientific field and the social conditions of the progression of reason” that the scientific field was thus one of the issues that stakes in the scientific struggle, and the dominant art to impose the definition of science consists of having, being and doing what they have, are or do.

In order to illustrate Bourdieu central thesis on cultural field, Homo Acadamicus (Bourdieu P., 1988) was his most detailed research in the academic institute. Using correspondent analysis of various measures of economic, social and cultural capital and political and economic power, Bourdieu showed that educational institutions, faculties, disciplines and professors were all differentiated by the axes of the opposition of economic capital and cultural capital that characterized the field of power. Faculties of Law and Medicine were situated near the pole of economic and political power or academic power, whereas the natural science, social science and Faculties of Arts were placed near the pole of cultural power or scientific power. Professors in the Faculties of Law and Medicine who were much more closely associated with the economic pole of power tended to oppose the movement of the reform which deconstructed their value and norm, whereas many professors in the Faculties of Arts and Science openly embraced the movement. (Ritzer G., 2000)

Within the Faculty of Medical Science, Bourdieu found that medical researchers tended to be situated on the political left (scientific power), whereas clinical practitioners and especially surgeons tended to be situated on the political right (economic pole or academic power). In conclusion, professors who are close to the economic pole of the power field are the greatest. The professors who do scientific researches or who invent new forms of knowledge incline to question the status more than those who preserve and transmit the cultural heritage of social order.

Consequently, using correspondent analysis of Bourdieu, dental professions are all differentiated by the axes of the economic capital and cultural capital. The dental clinician or clinical practitioners tend to be closer to the economic pole or academic power. On the other hand, the basic dental science or pre-clinical practitioners are closer to the cultural pole or scientific power. Since the clinical dental practitioners or dental clinicians could convert their cultural capital to economic and political capital easier than the pre-clinical dental practitioners, clinical practitioners could earn more

income by means of converting their clinical skills which are their cultural capital to economic capital in the field of dentistry. Most of the dentists in public sectors and private sectors are clinical practitioners because clinical skills are the identity of dentists. Everyone knows that dentists who are professional can earn much income from clinical skills. Thus, people are very surprised if a dentist does not perform clinical practices.

Dental professionals who perform in the area of oral health promotion and prevention can be categorized as the scientific power or cultural pole, because this field of dental professions gives them less opportunity to convert their cultural capital to economic capital. They try to invent new form of knowledge of social movement for oral health. For instance, in the second Conference of Dental Education in August, 2002 most of the committees were the dentists who were interested in the oral health promotion and tried to reform the dental education by focusing on community, promotion and prevention.

Historically, most of the dental services that were provided by foreign dentists during the reign of King Rama III were tooth extraction in order to relieve dental pain and cosmetic dentistry by means of covering teeth with gold. All of the foreign dentists were private practitioners. Besides, the objective of establishing the first Faculty of Medical Science at Chulalongkorn University in 1960 was to train dental students to cure or treat the oral disease and repair or replace artificial tooth. Thus, main performances of dentists at the beginning were treatment and rehabilitation (dentures) which were the basic dental need of population. It meant that dental cares were private goods which were provided by private dentists, especially dentists in urban areas. Accordingly, dental professionals could convert their cultural capital to economic capital from the beginning of their professions.

Promotion and prevention of oral health have been developed since the Fourth National Social and Economic Development Plan (1977-1982). It was focused on oral health promotion and prevention rather than treatment. The performed activities were rinsing fluoride and brushing teeth after lunch for primary school children. All of the activities for promotion and prevention were proposed by the public health sector for the welfare of inferiors in societies. Thus, the activities of oral health promotion and prevention could be judged as public goods. Public goods, promotion and prevention

care were responsibilities of public sectors and free of charge, whereas the private sectors provided the private goods, curative and rehabilitative care for people by paying for services. This evidence insisted that the promotion and prevention care tented to be situated near the scientific pole or cultural power rather than academic pole or economic power.

Analyzing the dental training aspect, orthodontist, pedodontist and prosthodontist are the three most popular specialties for dentists, whereas oral diagnosis and dental public health are the two least popular demands. For example: in 2002, there were 77 candidates demanding to study in Master Degree of Orthodontics in Faculty of Dentistry, Chiang Mai University; by contrast there were only 3 candidates demanding dental preventive programs. Since training the dental prevention can not gain more income in the private sectors, it can be only public goods or welfare goods.

There are ten departments in the Faculty of Dentistry, Chiang Mai University. Promotion and prevention of oral health belongs to Department of Community Dentistry, which has been the latest department since 1984. Other nine departments focus on treatment which dominates the dental education by controlling dental knowledge emphasizing manual skills or dental competences. The competences are the cultural capital that could be easily converted to economic capital as one of the five year dental students commented on the dental education:

> "Some lecturers pointed that good manual skills in dental operation could give a good opportunity to earn more income after graduation. You should pay more attention to the clinical training."
>
> (Miss G,5th year student)

The high turn over rate of dentists shift from government health services toward the private sector is another evidence that shows the conversion of their cultural capital to economic capital. Most of the dentists working in government sector, as general or district hospitals and Faculty of Dentistry, are still part time working in the private hospitals or private clinics. Curative is their cultural capital which can be convert to economic capital.

> “Chiang Mai province is a big city with 22 districts and 2 sub-districts. Chiang Mai provincial health office has divided Chiang Mai into 3 zones, there are the outer zone, middle zone, and inner zone. All of the community hospitals in the outer zone are area settle near the marginal area of the province, i.e. Viang Heng hospital, Mae Eye hospital. There are highly turned over rate of dentists in this zone, turned from outer zone to the middle zone. Most of them are shift toward to the private sector after one or two years working. For the middle zone, the community hospitals such as Praw hospital, Fang hospital, the rate for turn over of the dentists is lower than the outer zone. Dentists try to move to the inner zone which is near the city. Sarapee hospital, Hang Dong hospital, San Sai hospital are the community hospital in the inner zone, are low turn over rate of dental personnel. Most of the dentists in this inner zone are rather stable but some are shift to private sector too. Dentist is one of the professional that turn over rate was constantly high, not different from the medical professional . This might be one of the reasons for the failure of oral health promotion and disease prevention program. The oral health promotion and disease prevention activities need skill and continuing performance of the professional. The evidence of turn over dentist or dental professional was usually occurred, and now it was becoming the normal evidence. ”
>
> (Dentist Q, Health Provincial Office)

However, The habitus of dentist in this study is cultivated from their family background and in the process of dental education. Most of the dental students who are studying in dentistry, come from the middle class family.

> "….Most of my classmate graduated from the secondary school in the provincial level. I could remember that there were only two in my class were from the secondary school which were not in the provincial level, only district level. …."
>
> (Mr.K, 3rd year student)

Most of the dental students who come from the provincial secondary school are socialized to accustom to urban life. Duration of 6 years study in the Faculty of Dentistry, Chiang Mai University, which is the central university of the north. They become to be the urban life population. Their way of thinking and their world view are socialized by middle class habitus. With the middle class habitus of dentist, they try to move from the outer zone hospital to the inner zone hospital or private sector which they are accustomed to.

> " After graduated from the faculty, I had started my profession at Sa Merng hospital, 10 beds hospital at that time, 8 years ago. I felt strange to the patients, hill-tribe people. I was not get used to them. Even to the hospital officer, or hospital workers, I also felt strange. I thought that there was only doctor, medical profession, in the hospital that I could talk with the same language. ….. I felt that we were different social class except medical doctor. …… I had worked at this hospital for one year and moved to Jom Thong hospital which was near my home, in the Chiang Mai city. ….."
>
> (Dentist S, community hospital)

I consider that the turn over rate of dentists in high because of the habitus. The habitus of dentists is the middle social class, so they have to move to their field and their cultural capital that is the city or the town.

In conclusion, dental professionals who perform oral health promotion and prevention care have less power in the dental profession cultural system and have an effect on oral health promotion and prevention care to be less attractive for dentists. Moreover, less economic capital is converted when comparing with clinical

practitioners. It results that dentists still focus their performances on cure and prosthetics rather than promotion and prevention.

6.3 Health bureaucratic cultural system

Health bureaucratic cultural system consists of the Thai bureaucratic system and health professional system (Satiensap, K. 2003) Thai bureaucratic system was rooted in the administrative reform during the reign of King Rama V and was characterized by centralization and top-down directed administration (Samutawanich, C. 1992). This system focused on rules, regulations, rites, ranking and disciplines, job descriptions and procedures rather than results or outcomes and potentials or competences of personnel. Most of the Thai bureaucratic organizations tend to be power-oriented, dictatorship and paternalism. Thus, the relationship between the personnel is verticalization. The Thai bureaucratic system was based on the modern scientific management by division of labor and working people in the organization as one of producing factors like the materials and machines in the capitalistic industrial system. (Wongnaree, M. 1980)

Although health professional system was developed from the concept of division of labor and specialties, the relationship between the health personnel is more horizontal, not vertical. The pattern of performances is humanism, not mechanism. Also, cure and care are more sophisticated than industrial relations.

During the last 10 years, organization behaviors in the health administration, MOPH has performed in the way of power culture rather than professional culture as Bunlu Siripanich had described to reflect this change:

> "…the working culture of health personnel (in MOPH) had been changed from value and merit oriented on the academic basis to the patronage, command and self –benefit centered…"

At present, the Universal Health Care Coverage project is pushed by the political party and managed under the capitalistic industrial system. Medical care and dental

care are presented as goods which are produced in the health industry. Medical doctors, dentists and other health personnel are one of the health industrial line and responsible for producing health products for consumers. The Universal Health Care Coverage project focuses on patients' or consumers' satisfaction and neglects health providers. Health providers are alienated from the health system which they are accustomed to. The result is that turnover of health personnel especially medical doctors and dentists are much higher than in the past. This evidence demonstrates the conflict between the organization cultural system and health professional cultural system. This performing reform of the civil servants in the bureaucratic system is mostly focused on structural development and neglects the culture of organization. (Wongnaree, M. 1980) In additional to the Universal Health Care Coverage project that was mentioned before, the reform of educational system is another example using the capitalism and marketing mechanism to reconstruct the structure of educational system. Salary payment is up to the teaching workload, but cultural system of the organization is not involved.

Naturally, the management of health care system in the MOPH is centralized and often manages the whole system with only one health package or one package of health program and monitors only the activities of the procedure. For instance, the program of oral health surveillance for school children was lunched by the Dental Health Sector, Department of Health, MOPH in 1988. The program consisted of screening oral health by school teachers, and the teacher had to report the number of activities to the provincial health offices. Every primary school in the country had to perform in the same way without interest in different cultures and resources in different areas. Suporn (2001) criticized this oral health surveillance program for school children in his thesis that dental personnel misunderstood the concept of primary health care which was the philosophy of the oral health surveillance program: participation of people, empowerment and holistic approach. In addition, the management of oral health surveillance program was trapped in fallacies as Polgar (1963) stated:

- The fallacy of empty vessels
- The fallacy of separate capsule

- The fallacy of single pyramid
- The fallacy of interchangeable face.

Oral health promotion and prevention care is influenced by both cultural systems: health bureaucratic cultural system and dental health professional cultural system. Although the Universal Health Care Coverage project emphasizes promotion and prevention rather than cure, there is a big gap of the conflict between the philosophy or concept and practice. In the practical process, the Universal Health Care Coverage project which is backed up by the political party focuses on responding to population's demand of treatment. Accordingly, the promotion and prevention of oral health could not be achieved.

The managing structure of health organization is in the top-down direction and the success of the health program is evaluated by the performance of activities. This is not in accordance with the concept of health promotion which emphasizes the learning process of people, and health is not the end but the means of living.

> "Health promotion is a process which has the important objective to increase people's controls over their health and issue impacting on it "
>
> (Wass A., 1997)

> "The definition of health promotion focuses on the importance of developing people and the need for health workers to be effective by means of advocacy and mediation"
>
> (Lukana, 1996)

Also, the payment system of oral health promotion and prevention activities in the Universal Health Care Coverage project considers the quantity of activities, such as number of pregnant women attending in the oral health promotional program, number of patients getting the dental health education. Both concept sand activities of the oral health promotion and prevention could not be fulfilled according to this pattern of administration.

Present dental health education still focuses on individuals' responsibilities for oral health promotion and prevention (Gastodo D., 1992) by means of providing oral health information on brushing tooth and risks of sweet food and drink. This is the traditional health promotion, whereas the holistic health promotion focuses on empowering people to control their oral health. Consequently, Watt RG et al (2001) has proposed the outcome measurement of the oral health promotion (as shown in detail in appendix):

> "…. the dental health education is the oral health promotion action, thus the oral health promotion outcome should be oral healthy literacy (change in oral health knowledge and skill) and the intermediate health outcome is healthy lifestyle with healthy environment …"
>
> (Watt,2001)

In conclusion, the managing structural system in Ministry of Public Health and the Universal Health Care Coverage project do not match the recent concept of oral health promotion and prevention.

In additional to the strategy of the Universal Health Care Coverage project emphasizing promotion and prevention rather than cure, the project tries to set up the activities of oral health promotion and prevention to force the oral health personnel to perform. Conversely, according to the aspect of health personnel, especially dental personnel are trained to be proficient in clinical skills. By contrast dental health promotion and prevention has often been relegated to a marginal role in dental education. It results that most of the dentists emphasize cure and rehabilitation of oral health rather than promotion and prevention as one of the dentists described:

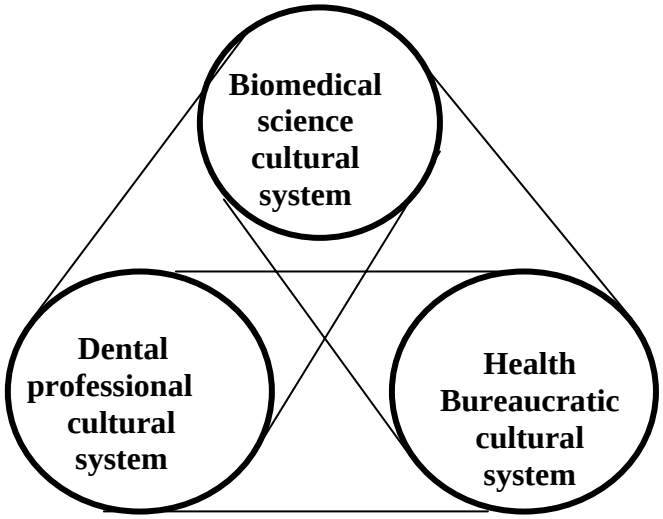
> "I was mostly trained for curative skills and I also was accustomed to dealing with patients individually. So I lack community skills and communication skill in oral health promotion which had to be dealt with other personnel who were not in dental field or health

> field. Although I trained more skills in oral health promotion, I did not appreciate it. I would be proud of my clinical skills."
>
> (Dentist G, community hospital)

This means that the strategy of health reform has an emphasis on only the structure and activities of the program and has lack of concerns about reforming the professional cultural system which is internalized in the health system.

CONCLUSION

At last, I would like to conceptualize that both concepts and practices of the oral health promotion and prevention is hard to achieve. The concepts of oral health promotion and prevention are surrounded by the complex cultural system: biomedical science, dental professional and health bureaucratic cultural system.



The biomedical science cultural system mainly influences other two cultural systems. Various clinical expertise in dental profession as division of labor in the modern scientific management results in separating oral health promotion and prevention from holistic oral health care. The provisions of the oral health care also focus on disease and individualism, which were based on the biomedical science

paradigm, whereas the oral health promotion focuses on health and human perspectives.

The management of oral health in the health care system is based on the concept of division of labor which separates oral health care from other health cares. It is also a top-down management and focuses on the evaluation of numbers of activities which are performed rather than the outcome of health and oral health. Oral health promotion and even health promotion are limited only to designed activities which are not fit for the whole population from central part of the health bureaucratic system. Also, the pattern of activities is too rigid to adapt.

In the mainstream of globalization, capitalism and consumerism influences the dental professionals. It limits them to struggle for their identities which are cure-focused. One senior professor in social science commented on the dentists in the role of oral health promotion and prevention:

> "Right now, I can not imagine how dentists can jump out of the oral cavity. The outcome of dental clinical practices is rather attractive including the commercial benefits. The dental care is private goods rather than public goods. It is very difficult to change dentists' role from cure to promotion and prevention because it may decrease their identities. Their identities are cultivated by the dental education from the clinical settings. Therefore, they may lose their confidence in community settings when they do activities of oral health promotion. I am uncertain if dental professionals can accept their new roles: the roles of promotion, catalyst and community, not the role of oral specialist which is the individual role. It would need a special motivation to pull them out of the professional frame and to reform the dental educational curriculum. However, social and cultural structures are necessary to be reformed to support this motivation, the new role of dental professionals."
>
> (Supreda, 2003)

The socioeconomic policy of the present government is mainly capitalism. The health tour project is one of the policies that would affect the oral health promotion and prevention and even the dental personnel. Chiang Mai, Phuket and Bangkok are the first three provinces that start providing health and oral health care for foreign tourists. Accordingly, the health and oral health cares become goods. Dentists will move from rural areas to urban areas in order to provide the oral health cares in private hospitals. This evidence will directly affect the Universal Health Care Coverage project. Also, concepts and practices of health promotion and prevention will be impossible to be reformed.

RECOMMENDATION

Recommendation for policy

1. The curriculums of dental education should be reformed to emphasize:
    - Health-oriented direction rather than disease-oriented direction
    - Community –based model rather than clinic-based model
    - Care rather than competence
    - Holistic oral health care rather than segmental oral health care
    - Problem-based learning rather than subject-based learning

    At the beginning of the reforming period, dental instructors and dental students' concepts of health must be shifted from Newtonian physics to Quantum physics paradigm.
2. Health bureaucratic system should be reformed by means of:
    - Evaluating oral health outcomes rather than oral health performances or activities
    - Considering health providers as humans, not as objects in the capitalism system
    - Applying the system of decentralization rather than centralization
    - Developing human resources to focus on conceptions rather than procedures which are set by the government

Recommendation for further study

1. What is the contesting discourse and practice in the instructors of the Faculty of Dentistry who understanding the new concept of health promotion. How they face and react to the resistance of the biomedical science discourse and practice.
2. How the dentists working in the health care services resist to the health bureaucratic cultural system. What is the contesting discourse and practices of them toward the oral health policies that are focuses on disease-oriented.

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BIOGRAPHY

NAME Mr. Songvuth Tuongratanaphan

DATE OF BIRTH 7 September 1956

PLACE OF BIRTH Bangkok, Thailand

INSTITUTIONS ATTENDED Chulalongkorn University, 1976-1982:
Doctor of Dental Surgery (Dentistry)
Mahidol University, 1984-1985:
Master of Public Health
University of Alabama at Birmingham,
U.S.A., 1988-1989:
Master of Public Health
Mahidol University, 1998-2004:
Doctor of Philosophy
(Medical and Health Social Science)

POSITION Assistant Professor

OFFICE Community Dentistry Department
Faculty of Dentistry,
Chiang Mai University
Tel. 0-5394-4468-9
E-mail: dnivtngr@chiangmai.ac.th