

**COMPARISON OF SHEAR BOND STRENGTH AT VARIOUS CURING
TIMES WITH A HIGH-POWER LIGHT EMITTING DIODE CURING
UNIT FOR BONDING ORTHODONTIC BRACKETS**



CHONLADA RATTANAWIWATPONG

**MASTER OF SCIENCE
IN ORTHODONTICS**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

THE GRADUATE SCHOOL

CHIANGMAI UNIVERSITY

MARCH 2010

**COMPARISON OF SHEAR BOND STRENGTH AT VARIOUS CURING
TIMES WITH A HIGH-POWER LIGHT EMITTING DIODE CURING
UNIT FOR BONDING ORTHODONTIC BRACKETS**

CHONLADA RATTANAWIWATPONG

**A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE
IN ORTHODONTICS**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

THE GRADUATE SCHOOL

CHIANGMAI UNIVERSITY

MARCH 2010

**COMPARISON OF SHEAR BOND STRENGTH AT VARIOUS CURING
TIMES WITH A HIGH-POWER LIGHT EMITTING DIODE CURING
UNIT FOR BONDING ORTHODONTIC BRACKETS**

CHONLADA RATTANAWIWATPONG

THIS THESIS HAS BEEN APPROVED
TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN ORTHODONTICS

EXAMINING COMMITTEE



.....CHAIRPERSON

Assoc. Prof. Nita Viwattanatipa



.....MEMBER

Assoc. Prof. Dhirawat Jotikasthira



.....MEMBER

Assist. Prof. Marasri Chaiworawitkul

4 March 2010

© Copyright by Chiang Mai University

ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to my kind and generous advisors, Associate Professor Dhirawat Jotikasthira, Instructor Wikanda Khemaleelakul, Instructor Supassara Sirabanchongkran and Instructor Janya Apisariyakul, for their initiations, valuable advice and guidance, comments and encouragement in this study.

I would like to thank:

Instructor Thepparat Khemaleelakul, Department of Restorative Dentistry and Periodontology, Faculty of Dentistry, Chiang Mai University for recommendations on using the Instron[®] testing machine,

Instructor Narumanas Korwanich, Department of Community Dentistry, Faculty of Dentistry, Chiang Mai University for suggestions on statistical analysis,

Dr. M. Kevin O Carroll, Professor Emeritus of the University of Mississippi, School of Dentistry, and Faculty Consultant at Chiang Mai University, Faculty of Dentistry, for his assistance in the preparation of the manuscript,

The Faculty of Dentistry, Chiang Mai University for the research scholarship,

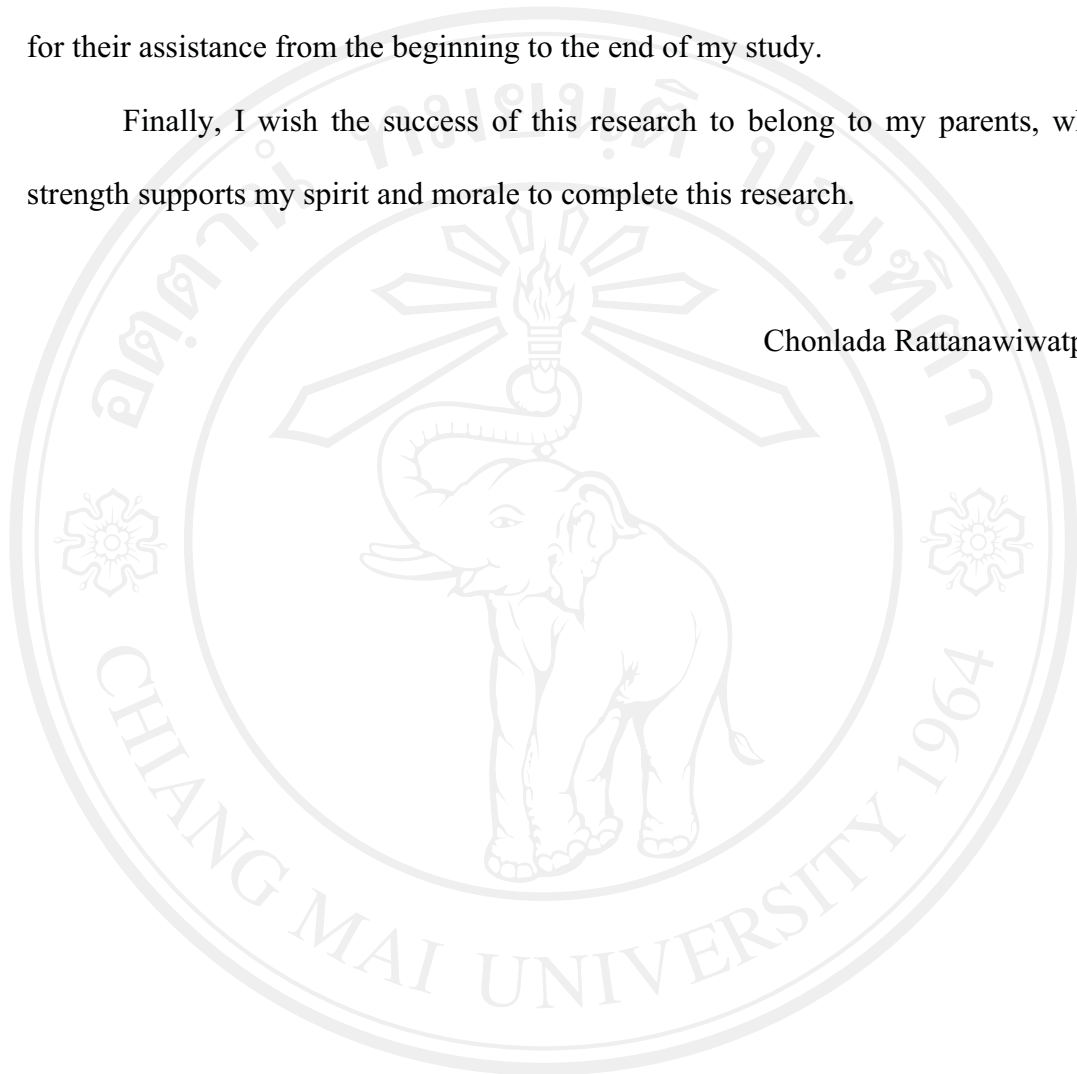
The Dental Materials Laboratory Unit, Faculty of Dentistry, Chiang Mai University and its staff for suggestions and permission to use the Instron[®] testing machine, distilled water and the incubator,

Dental-Siam Enterprise Co., Ltd. for supplying materials (APC[™] II Gemini Twin brackets and Transbond[™] Plus Self Etching Primer) and Acteon (Thailand) Ltd. for supplying a light curing unit (Mini LED[™]) used in this study.

I also wish to extend my thanks to all of the staff members in the Department of Orthodontics and Pediatric Dentistry, Faculty of Dentistry, Chiang Mai University for their assistance from the beginning to the end of my study.

Finally, I wish the success of this research to belong to my parents, whose strength supports my spirit and morale to complete this research.

Chonlada Rattanawiwatpong



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved