## ACKNOWLEDGEMENT

First of all, I huge thanks to the Heavenly God, Jesus Christ, for all the graces and blessings that provides health and wisdom to me for finishing this thesis well.

The title of this thesis is "Effect of Problem-Based Learning Model Using Virtual Laboratory Flash Media on Student's Achievement on the Teaching of Solubility and Solubility Product". This research is done in SMA Negeri 2 Pematangsiantar. Therefore, this thesis writing is one of the prerequisite to get the degree of Sarjana Pendidikan in Chemistry Department, Faculty of Mathematics and Science, State University of Medan.

In this opportunity, I would like to express my greatest thanks to Drs. Wesly Hutabarat, M.Sc as my thesis supervisor, thanks for his valuable time spent in giving guidance comment and advice during the process of completing this thesis from the beginning of proposal seminar, conducting the research, until processing the data of research result. The gratitude are also expressed to Prof. Dr. Albinus Silalahi, M.S, Drs Jamalum Purba, M.Si, and Dr. Zainuddin Muchtar, M.Si as my reviewer counselor for their advice, suggestion, guidance, and constructive comment in the process of completing this thesis.

Thanks also to all of staff and lecture in Chemistry Department and Bilingual Chemistry Education Study Program at FMIPA UNIMED who have helped me. Dr. Simson Tarigan, M.Pd as my academic supervisor. The gratitude also presented to Mr. Rudol Barmen Manurung, M.Pd as principle of SMA Negeri 2 Pematangsiantar who give permission for conducting the research in school and also for all teacher and students in SMA N 2 Pematangsiantar, especially Bu Menak Pakpahan and Bu L.R Siregar as chemistry teacher who has given much support and guidance for me as long as the research is conducted.

The special gratitude is belonging to my beloved father Hasiholan Siregar and my beautiful lovely mother Rospita Silitonga who will never get tired of praying and struggling for the success of my study every day and also to all my dearest big family (Raja Doli Siregar, Tri Utami Siregar, Pa Glen Siregar, Lia Yanti Siregar, Nani R Siregar, Romauli M Siregar, Robby N. Siregar, Tulang Lian, Kak Asna, Kak Reni, Kak Juli, Kak Ida, Kak Risna, etc) for their love, support, prayer, and comment, also the motivation to me for finishing the study in UNIMED.

Special thanks to my best friend and my sister, Bernike Firmayanti Aruan for your time to accompany me during the research. And to my best partner, Sri Rahmania for the moment we had enjoyed, happiness and sadness for our thesis until the final day of examination. Dewi N Marpaung, Angel Siregar, and Ferinda Simbolon for their supports. Also to all of my 25 friends in Bilingual Chemistry 2010, thanks for the togetherness in this 4 years. Special thanks also to my special partner for the pray, support, and continuous motivation. And for all whose name cannot be mentioned one by one, thanks for everything.

I hope this thesis would be useful for the researcher who wants to make the further study about the learning model which is suitable for learning solubility and solubility product, especially for the students in chemistry department. I realize that this thesis is still far from perfections, therefore suggestions, comments, and constructive criticism from readers are needed for further improvement of this thesis.



Sinitta Ella Siregar

Reg. No. 4103332026