ACKNOWLEDGEMENT

The greatest praise and thankfulness to the Almighty God, Jesus Christ for His grace and blessing who always provide health, spirit, strength and everything to the author in finishing this study well.

The title of this thesis is “The Development of Innovative and Interactive Learning Material with Multimedia Based The Teaching of Buffer Solution”. This thesis is one of the prerequisite to get degree of Sarjana Pendidikan in Educational Department of Chemistry, Faculty of Mathematics and Natural Sciences, State University of Medan.

In this opportunity, I would like to express my greatest thanks to:

- Prof. Drs. Manihar Situmorang, M.Sc., Ph.D. as thesis supervisor thanks for his valuable time to spent in giving guidance comments and advices during the process of completing this thesis.
- Dr. Zainuddin Muhtar, M.Si, Dr. Iis Siti Jahro, M.Si, and Drs. Eddyanto, Ph.D. as examiner and author reviewer counselor for their advices, suggestions, guidance and constructive comments in the process of completing this thesis.
- Thanks also conveyed to Dra. Ani Sutiani, M.Si, as author’s Academic Supervisor who always guided author during the lecture.
- Prof. Dr. Retno Dwi Suyanti, M.Si, Dr. Ajat Sudrajat, M.Si, and Drs. Marudut Sinaga, M.Si as the expert lectures to standardize the learning subject and give suggestions for making the good learning material.
- Author would like to said gratitude to Dr. Asrin Lubis, M.Pd, as the Dean of FMIPA Unimed, Dr. Iis Siti Jahro, M.Si as the Coordinator of Bilingual Program in FMIPA Unimed, Nora Susanti, S.Si., Apt., M.Sc., as Secretary of Bilingual Program, and also Agus Kembaren, S.Si., M.Si as Head of Chemistry Department, and along with Mr. and Mrs. Staff and Lecturers in Educational Chemistry Department especially in Bilingual Study Program of FMIPA UNIMED who have helped author.
• The Author also said thanks to Alberto Colia, M.Pd as Headmaster of SMA Negeri 1 Berastagi, Bastaria Sinulingga, S.Pd, M.Pd as Headmaster of SMA Negeri 2 Kabanjahe, for giving permission to do research. Author also said thanks to all the teachers who helped author, giving suggestion and advice in the research. The author’s gratitude also to all of students who have rendered their time to standarize the learning material as a sample of research.

• The deepest and special loving, appreciation, and thank to my beloved parents, for all love, prayer, support, and sacrifice, my beloved father Happy Raymond P. Nababan and my beloved mother Linso Sinambela. They are my inspiration and my spirit in finishing my thesis for beginning to the end. They’re special, the best ever parents in my life. I love them to the moon and back. My love is also dedicated to my beloved siblings who always giving love, support, motivation, and laugh until the completion of this thesis, I love u all.

• Special thanks to my bestfriend, Yoga (also my partner in the thesis supervisor), Putri, Yovy, and Grace, my partner and also my very kind helper during in thesis arrangement, and always support me not only in my thesis arrangement but also in all my situation, in my daily life, and always receive my bad personality, thanks for unlimited time in our togetherness, laugh, and experience that make me more confidence and brave in my life. Thanks for that friendship.

• Special thanks also goes to my preacher in HKBP Lobutangga Pdt. Gading Simamora and his wife Marlina Silalahi who always treat me like her friend and daughter, and support me in completing my lecture. Thanks to kak Tiur who always support me, telling me funny capricious that make me spiritfully and be my friends and partner in crime.

• Thanks to Rineska, Elisabet, Rohani, Rosantri, Sister, Adi, Daniel, Erwin, Irwan who always support, motivate and for being my gossiping place since senior high school. Special thanks also to Stefanus Purba, for the laugh, anger, sad, advice, for the place to share, wise words, motivation, support, and kindly to be the one of my friend. Good luck 😊!
Thanks to Srikanti as my room mate for allowing me to stay overnight when doing my thesis, for always support me. Thanks also for Heni, Magda, Febri, Nelly, Kak Leni, Rillis as my boarding house friends for all of the laugh, support and gossiping. Good luck for you guys.

Thanks also for my Tutoring Group in BOS 500 (gopek) for the support and motivation.

Greatest thanks to all my friends in CESP 2013 (Putri, Yoga, Yovy, Grace, Gisti, Ugi, Axel, Dahlena, Hamidatunnisa, Rosyadi or Komting) the most crazy and enjoyable class ever, full of ambition but full of fun, great to have you, great to know you, thank for this great awesome friendship. Thanks for this 4 years guys and let’s go to the next ambition.

And thanks for all people, whose name can’t be mentioned, who always support me. I love you all.

Finally, the author hopes this thesis would be useful for everyone who like to explore more about the learning material and the innovation and integration to learn Buffer solution notably and chemistry generally. May God bless us forever.

Medan, July 2017

Ayu Lestari Nababan
Reg No. 4133131008