

## ACKNOWLEDGEMENT

Frist, the greatest thanks to the Almighty God, Jesus Christ who always gives blessing and provide health, wisdom, strength, knowledge, and material for writer in composing this thesis accordance with planned time

The title of thesis is “The Effectiveness ProblemBasedLearningwithHandout MediatoIncrease Student’s Achievement on ColloidalSystem” that arranged to obtain the degree of SarjanaPendidikan in Chemistry Department, Faculty of Mathematics and Natural Science, State University of Medan (Unimed).

In this opportunity, the writer would like to express the thanks and great appreciate to Dr. MarhamSitorus, M.Si. as my thesis supervisor for his valuable time spent in giving guidance, advices, motivation, and suggestion during completing this thesis. The writer also thanks to the Prof. Dr. Ramlan, M.Si., Drs. Ani Sutiani, M.Si., and Drs. RahmatNauli, M.Si. as examiner for this thesis that giving me advices, suggestion, guidance, and constructive comments for this thesis’s completeness.

The writer also says thanks to Prof. Motlan, M.Sc., as the Dean of Mathematics and Natural Science Faculty, State University of Medan, Prof. Drrer.nat. BinariManurung, M.Si., as the coordinator of Bilingual Department, Dr. IisSitiJahro, M.Si., and Mr. Syamsudin as administrator of Bilingual Office for their advices and other necessary administrative business. The great thanks are also given Prof. Dr. RetnoDwiSuyanti. M.Si., as my academic supervisor for her guidance during my academic process in this university. The wirter also sat thanks to Prof. Dr. RetnoDwiSuyanti. M.Si.,DewiBarasa, S.Pd., M.Si., and BadianaSitorus, S.Pd as instrument’s validator in this research.

The author appreciation also given to Principal of SMA Negeri 2 Balige and chemistry teacher of grade XI Science program in SMA Negeri 2 Balige Badiana Sitorus, S.Pd., also all teachers who gave me chances to do research there. The author also says thanks to all students in SMA Negeri 2 Balige, especially XI Science 4, XI Science 5 and XII Science 3 that give time and attention during validity process up to doing research.

A deepest love, appreciation and thanks also goes to my parents, Mangantar Silalahi, Amk and Lasmaida Simanjuntak, also Girondi's Family, Jensen's Family, Fany's Family, my sister Melati Silalahi and Lelly Silalahi, my brother Patar Silalahi and all my families for their motivation, advice, prayers and financial support to me during my university lecture process. Thanks also given to my future Herman Pardamean Pangaribuan, that always become my mood booster, inspiration, motivation, pray and strength during this process.

Special thanks are given to all my best friends "Masaea De La Bro"; Martha L. Gaol, Monalisa Simbolon, Sabda Siahaan, Sry Yanti Pasaribu, Ester Sinaga, Erika Sinaga, Evi Panggabean, Irna Manalu, Dewi Simbolon, Labora Rajaguguk, Husen Manalu, my "Nudiroly's Family"; Dina Manihuruk, Nuriana Sihalo, Lili Manihuruk, and Zahbintar Ginting, my close's friends; Juwita Sitorus, Rusdi Simbolon, Lanita Munthe, Hesti Simarmata, Mariani Samosir and Jori Siahaan, my PPLT friends experience, and all my classmate in Bilingual Chemistry Education 2011 that always gives me the best moment in my education process for Angeline, Angela, Anggun, Baharuddin, Cholida, Desy, Debby, Evina, Fatma, Haposan, Hesti, Intan, Jori, Juliani, Juwita, Liesa, Lanita, Mariani, Nova, Poppy, Ricky, Riris, Rusdi, Ruth, Siti, Shinta, Yolanda, and Yuni for their kindness in my academic process. The writer also would like to say to everyone whose name can't mentioned one by one for your support and helping in my thesis process.

Finally, writer hopes this thesis can be used for those who would like to explore more about learning model and media in colloidal system. The writer realize that this thesis is still far from being perfect therefore critique and suggestion are needed for further improvement of this thesis.

Medan,  
The Writer,

Rhone P Brocha.Silalahi  
ID. 4113131059

UNIVERSITAS SEKELoa BAKTI MEDAN  
UNIMED

THE  
*Character Building*  
UNIVERSITY