

## FOREWORD

Praise God Almighty, who has given His mercy and grace so writer can complete this thesis well. This thesis is prepared to fulfill the requirements needed to achieve a Bachelor of Education degree at the Science Education Study Program, Faculty of Mathematics and Natural Sciences (FMIPA), Medan State University.

Researchers have gone through many stages following standard procedures at FMIPA Unimed, starting from determining the topic, drafting seminar proposals, conducting research, drafting a thesis, and defending exams. The selection of research topics is based on problems in the field related to the application of learning models that can improve problem solving abilities of junior high school students.

The author realizes that the preparation of this thesis will not be completed without the support of various parties, either directly or indirectly. On this occasion, the author would like to express her gratitude to all parties involved in preparing this thesis. The author thanks Prof. Dr. Herbert Sipahutar, MS, M.Sc. as an academic supervisor to Prof. Dr. rer. nat. Binari Manurung, M.Si, as thesis supervisor, has provided a lot of guidance, motivation, and direction in preparing this thesis. To Mrs. Lastama Sinaga, M. Ed., Dr. Ely Djulia. M.Sc., and Dr. Ridwan Abdullah Sani, M. Si as the examiner lecturer, have provided criticism and suggestions for improving this thesis. Thanks to Dr. Nurdin Siregar M. Si., and Sabani, S.Pd., M. Si. For his help through the validation of research instruments. The authors also thank the schools and science teachers at SMP Negeri 14 Medan. To the Ministry of Research and Technology. The author also expresses her gratitude to Bidikmisi for the scholarship assistance. To the writer's parents, Zikri and Aditya as the author's younger siblings, Aisyah, Kartini, Fauzia, Masyitah, and Rika as comrades in arms, and the entire writer's family to friends from Bilingual science education 2018. Finally, thank you to herself and all parties who are related.

The author realizes this thesis still has many shortcomings and limitations, but while expecting constructive criticism and suggestions, the author hopes this can be useful for related parties.

Medan, June 2022

Writer

Fidya Witria' Ash Suci