

**COMPARING THE EFFECTIVENESS OF VIRTUAL REALITY AND VIDEO
TRAINING IN ANATOMY EDUCATION FOR LAYPERSONS USING HRV
ANALYSIS**

By

Darrient Aviel Irawan
12106052

BACHELOR'S DEGREE
in

BIOMEDICAL ENGINEERING
FACULTY OF LIFE SCIENCE AND TECHNOLOGY



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

June 2025

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



Darrient Aviel Irawan

Student

14/07/25
Date

Approved by:



Gerald Justin Goenawan, S.T., M.Sc

Thesis Advisor

14/07/25
Date



Florence Ignatia Partowidjojo, S.T., B.Eng., M.Sc

Thesis Co-Advisor

14/07/25
Date



Dr. Hery Sutanto, S.Si., M.Si.

Dean

14/07/25
Date

Darrient Aviel Irawan

ABSTRACT

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By

Darrient Aviel Irawan

Gerald Justin Goenawan, S.T., M.Sc, Advisor

Florence Ignatia Partowidjojo, S.T., M.Sc. Co-Advisor

SWISS GERMAN UNIVERSITY

This study aims to compare VR and video-based training methods in the context of anatomy education for laypersons, focusing on physiological responses as measured by heart rate variability (HRV). Thirty adult individuals were enrolled, having had no previous medical or anatomical education, and were randomly assigned to either the VR or video group, using stratified sampling to achieve demographic diversity. The duplicate anatomical education content was presented to both sets using immersive VR and conventional video modes. Knowledge gain was measured by pre- and post-tests, and HRV metrics (RMSSD and LF/HF ratio) were obtained to evaluate engagement and stress during training. The results revealed that, compared to the video group, the VR group had a significantly greater increase in knowledge, as well as significantly greater physiological engagement, as indicated by heart rate variability (HRV) data. These results suggest that the use of VR for teaching anatomy may lead to improved learning and satisfaction compared to traditional non-interactive methods. The study will help shift educational practices to incorporate immersive technology, thereby enhancing learner experience and outcomes.



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DEDICATION

This thesis is respectfully dedicated to Swiss German University, an institution that has provided me with the knowledge, guidance, and opportunities to grow academically and professionally.

I also dedicate this work to my beloved country, Indonesia, with the hope that the outcomes of this research may contribute, even in a small way, to the advancement of education and technology in our nation.



ACKNOWLEDGEMENTS

First and foremost, I would like to express my deepest gratitude to God Almighty for the strength, patience, and guidance throughout the process of completing this thesis.

I extend my sincere thanks to my thesis advisors, Mr. Gerald Justin Goenawan and Ms. Florence Ignatia, for their invaluable guidance, support, and constructive feedback, which have been crucial in shaping the direction and quality of this research.

I am also grateful to all the lecturers and academic staff of the Biomedical Engineering, Life Sciences, and Technology program at the Swiss German University, who have shared their knowledge and provided continuous support throughout my educational journey.

Special thanks to the participants who took part in this study. Without their willingness and enthusiasm, this research would not have been possible.

I would also like to acknowledge my fellow students and friends, especially Benedetta, Catalina, Daniel, and Marcell, for their encouragement, insightful discussions, and shared moments that made this journey less daunting and more meaningful.

Lastly, I am eternally grateful to my beloved family, my parents, siblings, and everyone who has supported me unconditionally with their prayers, love, and motivation. Your support has been my greatest strength.

This thesis is a product not only of my efforts but also of the support and encouragement of many individuals. Thank you.

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