ABSTRAK

Dewi, I Gusti Ayu Karla Komala (2021). *Pengembangan Modul Kimia Berbasis TripleChem untuk Meningkatkan Model Mental dan Keterampilan Berpikir Kritis*. Tesis, Pendidikan IPA, Program Pascasarjana, Universitas Pendidikan Ganesha.

Tesis ini sudah disetujui dan diperiksa oleh Pembimbing I: Dr. Drs. I Wayan Suja, M.Si. dan Pembimbing II: Dr. Anak Agung Istri Agung Rai Sudiatmika, M.Pd.

Kata-kata kunci: modul kimia, *TripleChem*, model mental, keterampilan berpikir kritis.

Penelitian ini bertujuan untuk menghasilkan modul kimia berbasis *TripleChem* yang valid, praktis, dan efektif untuk meningkatkan model mental dan keterampilan berpikir kritis peserta didik. Desain penelitian ini menggunakan model 4D yang dikembangkan oleh Thiagarajan *et al*. (1974), meliputi *define, design, develop, disseminate*. Subjek penelitian ini adalah modul kimia berbasis *TripleChem,* sedangkan objek penelitiannya adalah validitas, kepraktisan, dan keefektifan modul tersebut ditinjau dari model mental dan keterampilan berpikir kritis peserta didik. Penelitian dilakukan di SMA Dwijendra Denpasar pada bulan Desember 2020 - Juni 2021, dengan melibatkan peserta didik kelas XI MIPA 1, XI MIPA 2, dan XI MIPA 5. Hasil uji validitas isi (rentang skor 0 – 1), memperoleh rerata skor 1, termasuk kategori sangat valid. Hasil uji validitas kegrafikan (skor 0 – 1), memperoleh rerata skor 0,75, termasuk kategori valid. Hasil uji validitas bahasa (skor 0 – 1), memperoleh rerata skor 0,92, termasuk kategori sangat valid. Kepraktisan berdasarkan hasil uji keterbacaan semua modul sebesar 4,33 (rentang skor 0 – 5), termasuk kategori sangat praktis. Kepraktisan berdasarkan keterlaksanaan penggunaan modul dalam pembelajaran di kelas XI MIPA 2 sebesar 4,41 (rentang skor 0 – 5), termasuk kategori sangat praktis. Rerata skor N-*gain* model mental siswa kelas XI MIPA 1 dan XI MIPA 5 secara berturut-turut sebesar 0,73 dan 0,74, termasuk kategori tinggi. Persentase model mental ilmiah (model konseptual) di kelas XI MIPA 1 naik sebesar 59,71% dari 10,00% menjadi 69,71%, sedangkan miskonsepsi turun sebesar 14,71% dari 15,29% saat *pretest* menjadi 0,59% saat *posttest*. Persentase model mental ilmiah (model konseptual) di kelas XI MIPA 5 naik sebesar 50,88% dari 6,16% menjadi 57,06%, sedangkan miskonsepsi turun sebesar 50,88% dari 50,88% saat *pretest* menjadi 0,00% saat *posttest*. Rerata skor N-*gain* keterampilan berpikir kritis kelas XI MIPA 1 dan XI MIPA 5 secara berturut-turut sebesar 0,65 dan 0,66, termasuk kategori sedang. Hasil tersebut menunjukkan modul kimia berbasis *TripleChem* sudah valid, praktis dan efektif.

ABSTRACT

Dewi, I Gusti Ayu Karla Komala (2021*). Chemistry Modul Development Based on TripleChem to Improve Mental Models and Critical Thinking Skills.*
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The thesis has been checked and approved by Dr. Drs. I Wayan Suja, M.Si., as the first supervisor and Dr. Anak Agung Istri Agung Rai Sudiatmika, M. Pd., as the second supervisor.

Keywords: Chemistry module, *TripleChem,* Mental Model, Critical Thinking Skills.

The research is aimed to produce a valid, practical and effective chemistry module based on *TripleChem* to improve mental models and critical thinking skills of students. The design of this research used 4D models, developed by Thiagarajan et al. (1974), which include *define, design, develop, disseminate*
The subject of the research was Chemistry Module based on *TripleChem*, while the objects of the research were validity, practicality, and effectiveness of the module in term of the mental models and critical thinking skills of the students. The research was conducted at SMA Dwijendra Denpasar in December 2020- June 2021, by involving the students of XI MIPA 1, XI MIPA 2 and XI MIPA 5. The result of the content validity test (score range 0 – 1), was obtained an average score of 1, including the very valid category. The result of the graphical validity test (score 0 – 1), was obtained an average score of 0.75, including the valid category. The result of the language validity test (score 0 – 1), was obtained an average score of 0.92, including the very valid category. The practicality based on the result of readability test of whole module was 4,33 (range 0-5), categorized as very practical. Practicality based on the implementation of the use of the module on learning in XI MIPA 2 as big as 4,41 (range 0-5), categorized as very practical. The average score of N-gain mental model of XI MIPA 1 and XI MIPA 5 successively as big as 0,73 and 0,74, categorized as high. The percentage of scientific mental model (conceptual model) increased 59,71% of 10,00% to 69,71%. The percentage of misconception mental model decreased 14,71 % of 15,29 % when pretest to 0,59 % when posttest. The average score of N-gain critical thinking of XI MIPA 1 and XI MIPA 5 successively as big as 0,65 and 0,66, categorized as middle. The result showed that the conducting of Chemistry module based on *TripleChem* is valid, practical and effective