ABSTRAK

MODEL PEMBELAJARAN *SiMaEXE* BERBASIS *MULTIPLE REPRESENTASI* DALAM MENINGKATKAN MODEL MENTAL DAN *SMART RISK-TAKING BEHAVIOR* PADA PEMBELAJARAN KIMIA

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Urgensi penelitian ini adalah lemahnya daya serap peserta didik terhadap pemahaman tiga level fenomena kimia (makroskopis, submikroskopis, dan simbolik) dan lemahnya guru dalam mengelola pembelajaran kimia. Salah satu model pembelajaran berbasis *multiple representasi* untuk membentuk model mental dalam memahami tiga level fenomena kimia adalah model pembelajaran *SiMaYang*. Model *SiMaYang* memiliki kelemahan, yaitu sulit membentuk imajinasi, pembelajaran harus berulang-ulang, dan belum sesuai karakter belajar abad 21, sehingga perlu perbaikan lebih lanjut. Penelitian ini bertujuan mendeskripsikan karakteristik dan kelayakan model pembelajaran *SiMaEXE* yang mampu membentuk model mental dan *smart risk-taking behavior* berdasarkan kemampuan awal dan hasil belajar peserta didik. Populasi dalam penelitian ini adalah peserta didik kelas X dari 3 (tiga) Sekolah Menengah Atas di Provinsi Lampung. Penelitian ini merupakan penelitian *mix method* tipe *multi stage evaluation* yang terdiri dari R&D dan eksperimen. Desain penelitian ini mengadopsi penelitian dan pengembangan atau R&D model Borg and Gall (2013). Pengukuran model mental menggunakan soal tes model mental, sedangkan pengukuran *smart risk-taking behavior* menggunakan angket IRT menurut Beghetto (2009). Penelitian ini menghasilkan model pembelajaran *SiMaEXE* guna mengatasi permasalahan pembelajaran tiga level fenomena kimia. Karakteristik model mental dan *smart risk-taking behavior* yang dihasilkan melalui model pembelajaran *SiMaEXE* didominasi oleh kategori baik dan baik sekali.

Kata kunci: model mental, *SiMaEXE, SiMaYang, smart risk-taking behavior*

ABSTRACT

THE *SiMaEXE* LEARNING MODEL WITH BASED ON *MULTIPLE REPRESENTATIONS* IN IMPROVING MENTAL MODELS AND SMART RISK-TAKING BEHAVIOR ON CHEMISTRY LEARNING

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The urgency of this research is the weak absorption of students in understanding the three levels of chemical phenomena (macroscopic, submicroscopic, and symbolic) and the weakness of teachers in managing chemistry learning. One of the learning models based on multiple representations to form a mental model in understanding the three levels of chemical phenomena is the SiMaYang learning model. The SiMaYang model has weaknesses, namely it is difficult to form imagination, learning must be repeated, and it is not yet in accordance with the character of 21st century learning, so it needs further improvement. This study aims to describe the characteristics and feasibility of the *SiMaEXE* learning model which is able to form mental models and smart risk-taking behavior based on students' initial abilities and learning outcomes. The population in this study were students of class X from 3 (three) high schools in Lampung Province. This research is a mixed method type multi-stage evaluation study which consists of R&D and experiments. The research design adopts the research and development or R&D model of Borg and Gall (2013). The measurement of the mental model uses mental model test questions, while the measurement of smart risk-taking behavior uses the IRT questionnaire according to Beghetto (2009). This research produced the *SiMaEXE* learning model to solve the learning problems of three levels of chemical phenomena. The characteristics of the mental model and smart risk-taking behavior generated through the *SiMaEXE* learning model are dominated by the good and very good categories.

Keywords: model mental, *SiMaEXE*, *SiMaYang*, smart risk-taking behavior