

## ABSTRAK

Penelitian yang berjudul “**Profil Model Mental Siswa SMA Beserta Faktor-Faktor Yang Mempengaruhinya Menggunakan Tes Diagnostik Metode *Predict-Observe-Explain* (POE) Pada Materi Larutan Penyangga**” bertujuan untuk menghasilkan informasi tentang profil model mental siswa SMA beserta faktor-faktor yang mempengaruhinya menggunakan tes diagnostik metode *predict-observe-explain* (POE) pada materi larutan penyangga. Metode penelitian yang digunakan adalah deskriptif kualitatif. Subyek penelitian adalah siswa kelas XI yang berjumlah 33 orang. Pengumpulan data dilakukan dengan instrumen penelitian berupa tes diagnostik, lembar observasi, pedoman wawancara dan lembar analisis representasi kimia. Profil model mental siswa SMA pada materi larutan penyangga dengan menggunakan metode *predict-observe-explain* (POE) menunjukkan keragaman. Pada tahap *predict*, umumnya siswa mampu memprediksi pH larutan penyangga. Namun, masih ditemukan beberapa kekeliruan jawaban siswa pada level submikroskopik dan simbolik. Pada tahap *observe*, menunjukkan profil model mental yang seragam karena siswa secara bersama-sama mengamati hasil demonstrasi. Pada tahap *explain*, umumnya pemahaman siswa dalam memberikan alasan menunjukkan model mental yang sederhana dan tidak utuh. Pembelajaran guru lebih mengutamakan level simbolik dan mengabaikan level submikroskopik serta keterkaitan ketiga level representasi kimia ketika menjelaskan konsep larutan penyangga. Penyajian materi pada buku pegangan siswa terlalu ringkas dan lebih mengutamakan level simbolik sehingga penjelasan materi yang mempertautkan ketiga level representasi kimia masih kurang. Hal tersebut berdampak pada masih ditemukannya profil model mental siswa yang mengutamakan level simbolik, sederhana dan tidak utuh.

Kata kunci : model mental siswa, pembelajaran guru, representasi kimia, larutan penyangga.

## ABSTRACT

The aim of study is to obtain information about the use of diagnostic tests with predict-observe-explain (POE) method for exploring student's mental models on buffer solution and its affecting factors. The method used in this study is qualitative descriptive method. Among 33 students of grade XI of senior high school were involved as participants in this study. Data were collected with an aid of several instruments i.e. diagnostic tests, observation sheets, interview guidance and analysis sheets of chemical representation. The results indicated the variety of the profile of student's mental models on buffer solution with POE method. Particularly, in the predict stage, many students were able to predict the pH of buffer solution through calculation based on scientific model. However, some failures were still found on students' answer at the submicroscopic level. In the observe explain, student's mental models showing uniform with each other because student observing together. In the explain stage, generally, student's mental models in reasoning were so simple and incomplete. Additionally, regarding to the teacher's explanation on the buffer solution concept showed that teacher's representation was emphasized on symbolic level rather than submicroscopic level and ignored the interconnection of three representation levels in learning process. Furthermore, chemical representation on student handbook demonstrated the similar condition whereas it was more concentrated on symbolic level and the existence of three level representation was still limited. Consequently, the profile of student's mental models were simple and inadequate.

*Keywords:* student's mental models; teacher's explanation; chemical representation; buffer solution concept.

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***PROFIL MODEL MENTAL SISWA SMA BESERTA FAKTOR - FAKTOR YANG MEMPENGARUHINYA  
MENGUNAKAN TES DIAGNOSTIK METODE PREDICT - OBSERVE - EXPLAIN (POE) PADA MATERI  
LARUTAN PENYANGGA***