ABSTRAK

Penelitian ini bertujuan untuk mendapatkan gambaran model mental siswa pada materi larutan penyangga. Metode yang digunakan adalah metode deskriptif dengan instrumen penelitian berupa Tes Diagnostik Model Mental – *Interview About Event* (TDM-*IAE*) yang telah divalidasi. Penelitian dilakukan kepada enam siswa kelas XII IPA di salah satu SMA Negeri di kota Bandung. Dalam penelitian ini ditemukan bahwa siswa kemampuan tinggi, sedang dan rendah lebih mudah menjelaskan level makroskopik, tetapi kesulitan dalam menjelaskan level submikroskopik, simbolik serta mempertautkan ketiga level representasi kimia pada materi larutan penyangga. Temuan ini didukung oleh tipe model mental yang ditemukan pada beberapa konsep dalam materi larutan penyangga. Pada konsep sifat larutan penyangga, ditemukan tipe model mental 1a (jawaban siswa benar secara ilmiah tanpa melalui pertanyaan *probing*), 1b (jawaban siswa benar secara ilmiah melalui pertanyaan *probing*), 2a (jawaban siswa benar sebagian tanpa melalui pertanyaan *probing*) dan 3 (jawaban siswa salah). Pada konsep cara kerja larutan penyangga, ditemukan tipe model mental 2b (jawaban siswa benar sebagian melalui pertanyaan *probing*), 3 (jawaban siswa salah) dan 4 (siswa tidak memberikan jawaban). Pada konsep perhitungan pH larutan penyangga, ditemukan tipe model mental 2a (jawaban siswa benar sebagian tanpa melalui pertanyaan *probing*), 2b (jawaban siswa benar sebagian melalui pertanyaan *probing*) dan 3 (jawaban siswa salah). Berdasarkan profil model mental siswa, ditemukan miskonsepsi siswa pada konsep pergeseran kesetimbangan (salah satu siswa kemampuan tinggi), ionisasi sebagian (sebagian siswa kemampuan tinggi, sedang dan rendah), definisi asam dan sifat larutan penyangga (salah satu siswa kemampuan rendah).

Kata Kunci: profil model mental, TDM-IAE, larutan penyangga, miskonsepsi

ABSTRACT

The descriptive study aimed to investigate students's mental models in buffer solution concepts using validated diagnostic test – Interview About Event (IAE). The interview was conducted to six students of high school natural science class XII. The results showed that: In general, high, middle and low ability students could describe buffer solution concept in macroscopic level, in contrast, students find difficulties to make explanation in both submicroscopic and simbolic levels, as well as to create interconnection between those three levels. These facts supported by mental model discovered on a few core concept of buffer subject. In buffer characteristic concept, these mental model discovered 1a (students answer were scientifically right without probing questions), 1b (students answer were scientifically right with probing question), 2a (students answer partially right without probing question), and 3 (students answer were wrong). In the working of buffer concept, these mental model discovered 2b (students answer partially right with probing question), 3 (student answers wrong), and 4 (students didn't give an answer). In calculation of buffer pH concept, these mental model discovered 2a (students answer partially right without probing question), 2b (students answer partially right with probing question) and 3 (students answer wrong). Based on the students' mental model profile, there is a student misconception in balance shift concept (one of high ability student), partial ionization concept (a part of high, middle and low ability students), acid definition and buffer characteristic concept (one of low ability student).

Keywords : mental model profile, TDM-IAE, buffer, misconception