

## TEACHER TRAINEES' ALTERNATIVE CONCEPTIONS ABOUT SOME ASPECTS OF COORDINATION CHEMISTRY: A CASE STUDY AT THE UNIVERSITY OF EDUCATION, WINNEBA-GHANA

<sup>1</sup>Sam, A., <sup>2</sup>Eminah, J. K., <sup>3</sup>Hanson, R., and <sup>4</sup>Raheem, K.

<sup>1,2,3,4</sup>Chemistry Education Department, University of Education, Winneba, Box 25, Winneba-GHANA

<sup>1</sup>\*All correspondence to: arkofuls@yahoo.co.uk

### ABSTRACT

Students' alternative conceptions of some aspects of coordination chemistry namely nomenclature and geometry, geometrical isomerism, bonding and colours in complexes differ greatly from scientific concepts. This study investigated the causes of students' alternative conceptions and how they express these conceptions in coordination chemistry. A case study design within the Model of Educational Reconstruction (MER) approach was used. The access population were all third-year chemistry pre-service teacher trainees in the University of Education, Winneba (UEW)-Ghana with sample size of fifteen (15) students. A pre-test administered at the beginning of the study in a class of 5 groups, comprising 3 students each over eleven weeks showed that students had alternative conceptions about some aspects of coordination chemistry. The students' alternative conceptions were derived from two-tiered questions, written tasks and inorganic formulae of some coordination chemistry complexes. The results among others indicated that the causes of the students' alternative conceptions emanated from their inability to distinguish between 2D and 3D visualisation and the misunderstandings of some inorganic chemistry terms. The study recommended that the coordination chemistry content at UEW has to be well connected in order to give the students a broader basis for conceptual change through meaningful interventional approaches such as Science Writing Heuristics (SWH) and Modelling and Modelling Skills (MMS).

**Keywords:** Alternative conceptions, conceptual change, heuristics, modelling skills.