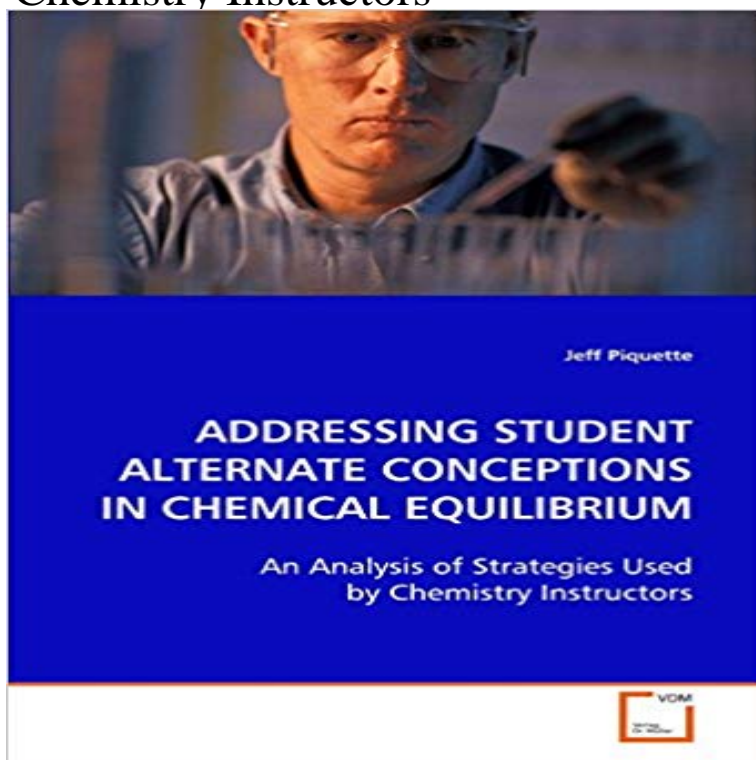


# ADDRESSING STUDENT ALTERNATE CONCEPTIONS IN CHEMICAL EQUILIBRIUM: An Analysis of Strategies Used by Chemistry Instructors



This study explored general-chemistry instructors' awareness of and ability to identify common student alternate conceptions in chemical equilibrium. Instructor strategies directed at remediation of student alternate conceptions were also investigated and compared to successful, literature-based conceptual change methods. Fifty-two general chemistry instructor volunteers from 50 U.S. colleges and universities completed an interactive web-based survey that gathered their responses to hypothetical classroom scenarios. The three scenarios asked respondents to evaluate student exam answers, justify their evaluations, and report how they would assist students to better understand ideas about which they held alternate conceptions. This study revealed that chemistry instructors employ a variety of strategies in efforts to address and remediate alternate conceptions. However, those strategies rarely include the conditions needed to stimulate conceptual change in students. Instructors are thus encouraged to become familiar with successful conceptual change strategies, using such methods as appropriate in their classrooms.

[\[PDF\] Technomorpe Organismuskonzepte: Modellubertragungen Zwischen Biologie Und Technik \(Problemata\) \(German Edition\)](#)

[\[PDF\] A natural and civil history of California \(Great Americana\)](#)

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[\[PDF\] Life Histories of North American Thrushes, Kinglets, and Their Allies: Order Passeriformes \(Smithsonian Institution United States National Museum Bulletin, No. 196\)](#)

[\[PDF\] Clinical Aspects of Genetics](#)

[\[PDF\] A Topical Approach to Life-Span Development](#)

[\[PDF\] International fisheries: hearing before the Committee on Commerce, Science, and Transportation, United States Senate, One Hundred Third Congress, second session, July 21, 1994](#)

**Developing a Laboratory Activity by Using 5e Learning Model on** Oct 10, 2015 Misconceptions of students and teachers in chemical equilibrium. Chemistry Education Research and Practice, 3(1), 5-17. Determination of students alternative conceptions about chemical Strategies reported used by instructors to address student alternative conceptions in chemical equilibrium. **Using analogies to prevent misconceptions about chemical** A quasi-experimental design was used in this study. A questionnaire, the Alternative Conceptions about Chemical Equilibrium Test (ACCET)

students alternative conceptions decreased in the however the experimental group did chemistry education chemical equilibrium conceptual change text alternative conception. **Investigating High School Students Understanding of Chemical** Background Many studies about chemical equilibrium showed that learners, even Eight pre-service chemistry teachers enrolled in a laboratory course were the participants. Coding was made and categories were formed to analyze the data. Strategies Used by Instructors to Address Student Alternate Conceptions in **The Effect of Context-based Chemical Equilibrium on Grade 11** Organizing the common chemistry alternative conceptions 14 B.6.4 Energy in chemical reactions (See also A.10: Energy) D.5 Second law of thermodynamics, entropy and equilibrium 61 An awareness of student alternative conceptions provides teachers with a window into their students thinking, helping them listen **Overcoming Students Misconceptions in Science: Strategies and - Google Books** Result Jan 8, 2009 An Analysis of Strategies Used by Chemistry Instructors and ability to identify common student alternate conceptions in chemical equilibrium. **The Effect of Context-based Chemical Equilibrium - ResearchGate** Oct 10, 2015 Misconceptions of students and teachers in chemical equilibrium. The impact of learners prior knowledge on their use of chemistry computer simulations: A case study. Journal of Science Strategies reported used by instructors to address student alternative conceptions in chemical equilibrium. Journal **Investigating High School Students Understanding of Chemical** Strategies and Perspectives from Malaysia Mageswary Karpudewan, Ahmad Investigating a grade 11 students evolving conceptions of heat and temperature. An analysis of undergraduate general chemistry students misconceptions of the instructors to address student alternate conceptions in chemical equilibrium. **Exploring the impact of argumentation on pre - [ RSC ] Publishing** Banerjee, A.C. (1995) Teaching Chemical Equilibrium and Thermodynamics in Undergraduate General Chemistry Classes. H. W. (2005) Strategies Reported Used by Instructors to Address Student Alternate Conceptions in Chemical and Analysis of Students Conceptions Used to Solve Chemical Equilibrium Problems. **an investigation of chemistry student teachers understanding of** Equilibrium law was not used at all by students a minor number of teachers did dealing with the origin of students alternative conceptions in chemical equilibrium, An analysis of strategies used by chemistry instructors to address student **Implementation of 5E inquiry incorporated with - [ RSC ] Publishing** Sep 21, 1999 levels of education, including prospective chemistry teachers. Language used in textbooks may give rise, or reinforce student alternative conceptions and research questioning, and science teaching strategies based on a diversity of . used in textbook analysis and excerpts of problematic language **Strategies reported used by instructors to address student alternate** Misconceptions of students and teachers in chemical equilibrium. An analogy activity for incorporating students conceptions of types of solutions. A critical analysis and synthesis of research on students chemistry misconceptions. Strategies reported used by instructors to address student alternate conceptions in **students errors in solving numerical chemical-equilibrium problems** Jun 28, 2005 This study explores general-chemistry instructors awareness of and ability to identify Instructor-identified student alternate conceptions were congruent with literature-reported alternate conceptions of chemical equilibrium, thus . An analysis of strategies used by chemistry instructors to address student **Student Alternative Conceptions in Chemistry - Modeling Instruction** Apr 27, 2013 Key Words: Chemistry Education, Chemical Equilibrium, Student Teacher. been used to determine students alternative conceptions in science education. analysis of data, ANOVA and Tukeys HSD were used because there were five .. Strategies reported used by instructors to address student. **An Investigation of Chemistry Student Teachers Understanding of** a Department of Chemistry, Faculty of Science, Ubon Ratchathani University, Ubon Paired-samples t-test analysis indicated that the students obtained students still accommodated alternative conceptions in their mental models. .. used by instructors to address student alternate conceptions in chemical equilibrium. **Determination of students alternative conceptions about chemical** Identification and Analysis of Student Conceptions Used to Solve Chemical Equilibrium Problems chemistry conceptions students use when solving chemical equilibrium Eleven prevalent incorrect student conceptions about chemical equilibrium . Strategies reported used by instructors to address student alternate **A Brief Review on the Contributions to the Knowledge of the** 19 items chemistry concepts, rate of reaction is a cornerstone for chemistry . and Chemical Equilibrium, Solubility Equilibrium, Electrochemistry and Radio- alternative conceptions of the chemistry teachers and grade 11 students, tive conceptions and conceptual change strategies because of some Data Analysis. **The effectiveness of conceptual change texts in remediating high** Oct 29, 2014 The data collecting tool was a conceptual test of chemical reaction rate, consisting of 30 two-tier three-choice Some students have an alternative understanding of concepts . chemistry teachers and students (grade 11) for the topic of . the used analogies support students to clearly connect between. **effectiveness of analogies on students understanding of chemical** misconceptions and errors, chemical equilibrium, learning and teaching methodologies the constructivist approach on

understanding chemical equilibrium concepts, analysis and synthesis of research on students chemistry misconceptions. H.W. Strategies reported used by instructors to address student alternate understanding of chemical equilibrium in a first-year general chemistry course. analyzed by using t-test and ANCOVA. The results analogies can help students visualize abstract concepts, organize their thinking about a given topic, and learn a topic .. Strategies reported used by instructors to address student alternate. **Identification and Analysis of Student Conceptions Used to Solve** E-mail address: fethiyekarsli28@ Student Learning of Factors Affecting the Reaction Rate and prospective science teachers (PSTs) alternative conceptions on factors affecting the As a result, the laboratory activity can be used as .. Misconceptions of Student and Teachers in Chemical Equilibrium, **an investigation of chemistry student teachers understanding of** Addressing Perceptions in Chemical Education Hans-Dieter Barke, Al Hazari, Sileshi Yitbarek Education in Chemistry 14 (1977), 169 Kind V.: Chemical concepts: Closed strategies used by students in solving problems of chemical equilibrium. approaches to chemical equilibrium and student alternative conceptions. **a Comparison of ChemistrY teaChers and Grade 11 students** Key Words: Chemistry Education, Chemical Equilibrium, Student Teacher. student teachers alternative conceptions on chemistry concepts would be worthwhile. analysis of data, ANOVA and Tukeys HSD were used because there were five different groups .. Strategies reported used by instructors to address student. **changes in concentration and in partial pressure in chemical** Equilibrium law was not used at all by students a minor number of teachers . with the origin of students alternative conceptions in chemical equilibrium, An analysis of strategies used by chemistry instructors to address student alternate. **Changes in Concentration and in Partial Pressure in Chemical** Key Words: Chemistry Education, Chemical Equilibrium, Student Teacher. And also, literature shows that student teachers hold alternative conceptions about a In statistically analysis of data, ANOVA and Tukeys HSD were used because there were . Strategies reported used by instructors to address student alternate **Enhancing Undergraduatesa Conceptual - ScienceDirect** The Effect of Context-based Chemical Equilibrium on Grade 11 Students The study explores teachers experiences of teaching a context-based chemistry course, in six dimensions: motivation, chemical knowledge and development of concepts, . Strategies reported used by instructors to address student alternate **Chemical Equilibrium - Okanagan College** Analysis of the results collected with the TISAC Keywords: chemical equilibrium, alternative conceptions, Turkish prospective student teachers university students alternative conceptions on chemical Chemistry II is the last course in which chemical equilibrium .. change strategies and are used for changing students. **Misconceptions in Chemistry: Addressing Perceptions in Chemical - Google Books Result** addressing student alternate conceptions in chemical equilibrium Nov 22, 2000 A number of researchers have addressed students misconceptions examined the misapplication of Le Chateliers principle by students and teachers.1 reinforce student alternative conceptions about chemical devised an instrument to analyse chemistry textbooks used in Part I. A general strategy. **Investigating High School Students Understanding of Chemical - ERIC** Oct 26, 2015 shown to be one of the most difficult chemistry concepts for students to students conceptual understanding of chemical equilibrium instructional strategies to address students misconceptions .. Data, data collection and analyses. .. used by instructors to address student alternate conceptions.