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Abstract

The present research aims is investigating the using of transparency and graphic materials in presenting maps of concepts in achievement and acquisitions laboratory skills in organic chemistry for second year students in College of Education / University of Mosul.

The sample of the research consisted of (41) male and female students randomly chosen from the second year chemistry students who were not equally distributed.

As for the tools of the research, the first tool was a diverse achievement test, the second tool was an observation form of the laboratory skills.

The following statistical methods have been applied: one way analysis of variance, sheffe – test a Cronbach, Cooper formula.

The results were as follows:

1. There was a statistically significant difference between groups in achievement.
2. There was no statistically significant difference between groups in acquisition laboratory skills.

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.(Collective Chapter, 1990: 67-68) .

(Zoller 1990)

(Zoller ,1990:1054) .

(Cullen 1990)

(Cullen , 1990 :1068) .

(Spaulding 1989)

(Zoller 1990) (Spaulding, 1989: 1619)

.(Zoller , 1990 : 1053-1065) .

(Rose & Munby 1991)

(Rose & Munby , 1991:11-23) .

(Roth & Roychoudhury 1992)

.(Roth & Roychoudhury, 1992 : 437-455)

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(Martin, 1994 : 86)

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One-Way-Analysis of

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28. Cooper, J. (1974) Measurement and Analysis of Behavioral Techniques, Chio, Charles , E. Merrill, Columbus.
29. Collette, A. T. & E. Chioppeta (1990). Science Instruction in the Middle and Secondary Schools, 3 rd ed. Macmillan publishing Company , New York.
30. Cullen, J. (1990) Using Concept Maps in Chemistry. An Alternative View. Journal of Research in Science Teaching, Vol. 27 No. 10, PP. 1067-1068.
31. Ferguson, G. A. (1981) Statistical Analysis in Psychology & Education , 5 th Ed. McGraw-Hill Inc., London.
32. Good, C.V. (1975) Dictionary of Education, 3 rd. ed. McGraw-Hill Co. New York.
33. Martin, R. E. et al (1994) Teaching Science for All Children. Library of Congress , Massachusetts.
34. Roth, W. M. & Roychouhury, Anita (1992) The Social Construction of Scientific Concepts or the Concept Mapping: New Perspectives for the Teachers, Journal of Science Education, Vol. 16, No. 4, PP. 437-455.
35. Roth, W. M. (1994) Students Views of Collaborative Concept Mapping An Emancipatory Research Project, Science Education, Vol. 78, No. 1 , PP. 437-453.
36. Ross, B. & H. Mumby (1991) Concept Mapping and Misconceptions A Study of High-School Education, Vol. 13, No. 1, PP. 11-23.
37. Spaulding, D. (1989) Concept Mapping and Achievement in High School Biology and Chemistry. Diss. Abs. Inter., Vol. 50, No. 6, PP. 1619.
38. Zoller, V. (1990) Student's Misunderstanding and Misconceptions in College Freshman Chemistry (General and Organic), Journal of Research in Science Teaching, Vol. 27, No. 10, PP. 1053-1065.