International Journal of Multidisciplinary Research and Growth Evaluation.

Teaching integrated biology in the module teaching methods of subjects about nature and social

Nguyen Kieu Linh
Tan Trao University, Vietnam

* Corresponding Author: **Nguyen Kieu Linh**

Article Info

ISSN (online): 2582-7138
Volume: 04
Issue: 03
May-June 2023
Received: 09-03-2023
Accepted: 25-04-2023
Page No: 393-396

Abstract
The integration of biological knowledge education in the module teaching methods of subjects about nature and Society not only helps students to properly perceive but also actively put knowledge into lectures to improve their awareness and skills. About the natural environment; about people, health of elementary school students. On the basis of the theory of integrated teaching and teaching methods, the article selects a number of articles for experimentation. Science class 4. Research results show that, if using integrated biological knowledge in guiding students to prepare some lectures in Science grade 4 will contribute to improving the quality of teaching for students majoring in Primary Education.

DOI: https://doi.org/10.54660/.IJMRGE.2023.4.3.393-396

Keywords: integrated teaching, Biology, Primary School

1. Introduction

Knowledge integration is the association, combination, and integration of knowledge from different sciences into a unified set of knowledge. Integrative teaching is a teaching process in which there is integration, scientific knowledge, and general rules close together, through which learners not only acquire scientific knowledge of the main subject but All knowledge of science is integrated, thereby forming for learners a more general view of the sciences with the same research object, and at the same time having a method to consider the problem in a logical and dialectical way. Learning Methods of teaching subjects about nature and society for students of the Faculty of Primary Education to help students master the basic knowledge of programs, textbooks, teacher books ; system of methods, means, forms of organization and methods of testing and evaluation in teaching. At the same time, helping students to have analytical skills, flexibly and effectively apply the knowledge they have learned in lesson design and teaching organization; Design test questions to assess the ability and quality of students. At Tan Trao University in Tuyen Quang province, this course consists of 6 chapters, including Chapter 5. Instruction for teaching Science c. In this article, we guide students to teach integrated Biology in the module Methods of teaching subjects about nature and biology. Social Studies in Science 4th grade in Primary School.

2. Contents

2.1. Learn the concept of integrative medicine

Around the world, integrated teaching started in the 60s of the twentieth century. There are many researchers who have published educational works on the concept of integrated teaching. In Bulgaria, with the "Integrated Conference on Teaching Sciences" held in Varna, many scientific research works on integrated teaching have been published. In particular, scientists all believe that integrated teaching will help " develop capacity in schools". Author Xavier Roegier [4] believes that integrated teaching is a teaching perspective in which students are formed with specific competencies, practical capabilities, students experience in the learning process and have capacity to serve real life. Based on the practice of basic education in the US, the author group Phidenta Kapkar (USA) has researched and analyzed five groups of teaching techniques presented in the report "The science and art of teacher training". In the Soviet Union and Eastern Europe, in-depth studies on scientific labor organization - the teaching process were strongly developed in the 70s of the twentieth century.

The research works published at the Research Laboratory of Teacher Training at the Pedagogical School are associated with the names of the authors Kisegov XI [3], O A bdoullina [2].

In Vietnam, in the 2018 General Education Program, it is determined: "*Along with changing the curriculum through integrated subjects/topics, the new General Education Program also emphasizes the need to see the relationship and interdependence. Interactions between subjects inside and outside the field*". Author Do Ngoc Thong – Ministry of Education and Training. The integration orientation is built by the Ministry of Education and Training in three directions: Intra-subject integration; Interdisciplinary integration; Cross-disciplinary integration.

2.2. Grade 4 Science Objectives in Elementary School

Grade 4 Science Objectives in Primary School

- Integrate knowledge of physics, chemistry, and biology, which aims to provide students with understanding know about the natural environment; about people, health and safety.
- Organize program content into topics: substance; energy; plants and animals; fungi, bacteria, viruses; people and health; organisms and the environment. These topics are developed from grade 4 to grade 5. Depending on the topic, the content of value education and life skills; health education, technology, environmental education, response to climate change, disaster risk prevention and mitigation, are presented at a simple and appropriate level.

In the section Methods of teaching subjects about nature and society, we only selected a few articles for experimentation Science class 4. These are lessons where teachers can effectively integrate their knowledge of biology.

2.3. Research organization

2.3 1.1. Selection of experimental subjects

We selected students from the primary university class A, B, course 7, divided into two groups called experimental group and control group, each group consisted of 13 students. These two groups are taught by the same teacher. For the experimental group, the teacher guides the students to prepare lectures with biological integration according to the process compiled by us. As for the control group, the teacher guided the preparation of lectures according to the normal teaching process.

2.3.2. Experimental organization

In order to draw objective conclusions and confirm the correctness of the proposed scientific hypothesis, we conduct experiments through the following stages:

*** Stage 1: Before experiment**

Multiple choice test on both groups to assess students' understanding of biodiversity conservation integration. The test consists of 10 questions and is 10 minutes long.

*** Stage 2: Formal experiment**

Purpose: Through the test results obtained in the experiment to determine the correctness and feasibility of the scientific hypothesis.

Methods of implementation

Guide students to prepare lesson plans

Control group: compose three articles in turn according to the steps of a normal essay. After each lesson, there is a teacher's comment and evaluation for students to complete the lesson plan.

Experimental group: Students of experimental group prepare lesson 1 with integrated content according to the steps of a normal lesson learned without the guidance of the teacher. Then, the teacher comments and guides the integration steps. Students in this group continue to prepare lesson 2 and essay 3. After each lesson, there is a teacher's comment, assessment and grading.

Conduct lecture: After completing the preparation of lesson plans, students of 2 groups will lecture 3 lectures in turn. After each lecture, there are comments from the group and the assessment and grading of the teacher.

Data processing and conclusions

*** Stage 3: After the experiment**

Purpose: the results after the experiment are the actual basis to increase the correctness, objectivity and feasibility of the scientific hypothesis. The test results will assess the overall ability of the student.

Methods of Implementation

- Conducted after the end of the official experimental period.
- Test on both groups. The test consists of two parts: multiple choice and essay. Time: 90 minutes.
- Analyze test results, compare test results in 2 groups and draw conclusions. Compare the post-experiment test results and the official experiment and draw conclusions about the influence of the experimental plan on the stability and durability of knowledge.

2.3.3. Methods of analyzing experimental results

Experimental results are analyzed to draw objective scientific conclusions. Analyze the data obtained from the experiment using Microsoft Excel software.

Based on the test results, we proceed to: tabulate the experimental distribution; frequency distribution table and cumulative frequency, calculate the mean and variance of each sample. From there, evaluate the effectiveness of the lesson preparation when there is the integration of knowledge of the experimental group compared to the control group.

2.4. Experimental results

2.4.4.1. Objective multiple choice test results

Results of the objective multiple-choice test before the experiment.

The test results are listed in Tables 1, 2 and 3.

Table 1: Scoreboard of objective multiple-choice test before reality test

Student		1	2	3	4	5	6	7	8	9	10	11	12	13
Experiment First	Experiment	6	5	5	6	7	5	7	8	6	6	6	4	4
	Contrast	5	6	3	3	7	6	8	4	4	7	6	5	5

Table 2: Objective multiple choice test frequency distribution table before the experiment

Test	Group	Number of students scoring Xi											N	$\bar{x}$	S
		0	1	2	3	4	5	6	7	8	9	10			
Experiment 1	Experiment	0	0	0	0	2	3	5	2	first	0	0	13	5.77	2.764
	Control	0	0	0	2	2	3	3	2	first	0	0	13	5.31	1.564

Table 3: Frequency distribution table and cumulative frequency test objective test before experiment

Lessons	Group	Quantity Student	% Number of students with Xi										
			0	1	2	3	4	5	6	7	8	9	10
Experimental T first	Experiment	13	0	0	0	0	15.38	23.08	38.46	15.38	7.69	0	0
	Control	13	0	0	0	15.38	15.38	23.08	23.08	15.38	7.69	0	0
Test	**Group**	**Quantity Student**	**% of students scoring Xi or less**										
			0	1	2	3	4	5	6	7	8	9	10
Experiment first	Experiment	13	0	0	0	0	15.38	38.46	76.92	92.31	100	100	100
	Control	13	0	0	0	15.38	30.77	53.85	76.92	92.31	100	100	100

From Table 2, we see that both groups are only aware of biological knowledge is at a good average level: The number of students with scores of 6 and 7 or below in the 2 groups is equal (76.92; 92.31), the number of students in the control group has scores of 3.4, 5 with a higher rate than the experimental group. Figure 1 shows the cumulative frequency of the two groups meeting at multiple points. There is no big difference between the experimental group and the control group (control: $_{\text{experimental}}$ X = 5.77 and $_{\text{control X = 5.77).}}$ = 5.31).

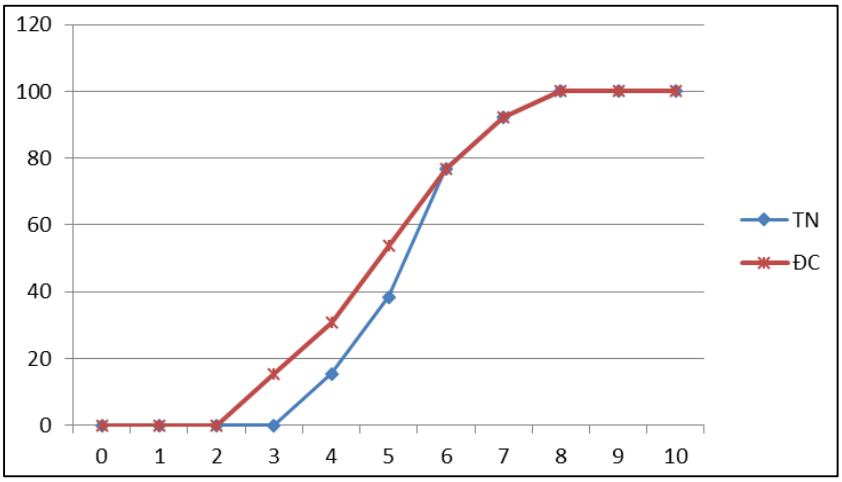

Fig 1: Graph showing the test cumulative line objective test before experiment

To confirm the above, we compare the mean value of the test scores of the experimental group and the control group.
Hypothesis H_0 posed is: "There is no difference in the perception of integration biological knowledge among groups experimental and control groups". Using U criterion to test hypothesis H_0, the test results are shown in the following table:

Table 4: Check the value of X before experiment

z-Test: Two Samples for Means	Experiment	Control
Mean	5.769231	5.307692
Known Variance	1.35897	2.39744
Observations	13	13
Hypothesized Mean Difference	0	
Z	0.858604	
P(Z<=z) one-tail	0.195279	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.390559	
z Critical two-tail	1.959964	

The results of data analysis in Table 4 show that: $X_{\text{experimental}} > X_{\text{control}}$ ($X_{\text{experimental}}$ =5.769; X_{control} = 5,307). Value U=0.858<1.96 (standard z-value), hypothesis H_0 is accepted. Thus, it means that there is no difference in the perception of biological knowledge integration between groups experimental and control groups, with a confidence level of 95%.

2.4.2. Results of lesson planning and teaching practice during the experiment

After the teacher's guidance on integrating biological knowledge, students' cognitive ability is improved. The students of the experimental group gradually learned to integrate biological knowledge into the lectures and lectures, making the lectures lively, attractive and very practical. All the results achieved by the experimental group are shown by the scores of the preparation and lecture exercises through the tables and graphs below.

Table 5: The results of lesson planning and teaching exercises, respectively while experimenting

Student		1	2	3	4	5	6	7	8	9	10	11	12	13
Essay 1	Experiment	6	7	8	8	7	8	7	5	7	6	9	8	7
	Control	5	8	4	7	5	5	4	6	4	6	7	6	6
Essay 2	Experiment	6	8	7	7	7	8	7	6	7	5	9	9	7
	Control	5	7	5	6	7	5	7	5	4	6	8	7	6
Essay 3	Experiment	7	8	7	6	8	7	8	5	8	8	9	7	6
	Control	5	7	5	4	6	6	8	4	6	7	8	6	7
Lecture 1	Experiment	8	8	7	6	8	6	8	8	7	6	7	5	6
	Control	5	6	5	5	7	6	7	5	5	7	7	6	6
Lecture 2	Experiment	8	7	8	7	7	6	9	7	8	6	7	5	6
	Control	5	6	4	5	6	7	8	5	6	6	7	6	7
Lecture 3	Experiment	7	8	7	7	9	6	8	9	7	8	7	6	7
	Control	5	5	6	5	7	7	6	5	6	8	8	7	6

Table 6: The frequency distribution table of the preparation and lecture exercises of the two groups, respectively while experimenting

Test	Group	Number of students scoring Xi											n	$\bar{x}$	S
		0	1	2	3	4	5	6	7	8	9	10			
Essay 1	Experiment	0	0	0	0	0	First	2	5	4	First	0	13	7.2	1.1
	Control	0	0	0	0	3	3	4	2	First	0	0	13	5.6	1.6
Essay 2	Experiment	0	0	0	0	0	First	2	6	2	2	0	13	7.2	1.3
	Control	0	0	0	0	First	4	3	7	First	0	0	13	6.0	1.3
Essay 3	Experiment	0	0	0	0	0	First	2	4	5	First	0	13	7.2	1.2
	Control	0	0	0	0	2	2	4	3	2	0	0	13	6.1	1.7
Lecture 1	Experiment	0	0	0	0	0	First	4	3	5	0	0	13	6.9	1.1
	Control	0	0	0	0	0	5	4	4	0	0	0	13	5.9	0.7
Lecture 2	Experiment	0	0	0	0	0	First	3	5	3	First	0	13	7.0	1.2
	Control	0	0	0	0	First	3	5	3	First	0	0	13	6.0	1.2
Lecture 3	Experiment	0	0	0	0	0	0	2	6	3	2	0	13	7.4	0.9
	Control	0	0	0	0	0	4	4	3	2	0	0	13	6.2	1.2

Table 6 shows that the mean values of the exercises and lectures of the experimental group are always higher than that of the control group, respectively. Specifically: in 3 articles, the average value of the experimental group always reached 7.2 while the control group gradually increased from 5.6 to 6.1. In 3 lectures: the experimental group gradually increased from 6.9 to 7.4 while the control group, although also gradually increased from 5.9 to 6.2, was still lower than the experimental group.

The variance of the experimental group is smaller than that of the control group: in the three preparation articles, the highest variance of the experimental group is only 1.3; and the control group was 1.6. In 3 lectures: the variance of the experimental group is also lower. This means that the test scores in the group the experiment was more concentrated than the group witness.

From the above, it is possible to draw conclusions: students in the experimental group were guided to integrate biological knowledge, so the lesson integrated a lot of meaningful practical knowledge; Lectures are more-lively, so the results are higher.

3. Conclude

From the above analysis results showed

Experimental group's preparation and teaching practice were always higher than that of the control group and increased over time. The gradual increase in results may be because experimental students are new to this learning method, so they face many difficulties in the process of acquiring knowledge.

The results of the test scores in the control group also changed. However, in general, it can be seen that the average value of the test scores over the experimental periods is still low. In contrast, the experimental group had better learning outcomes than the control group. That is, the integration of students understands the lesson better and systematizes knowledge better than teaching by traditional methods.

4. Acknowledgment

This research is funded by Tan Trao University in Tuyen Quang, Vietnam).

5. References

1. Nguyen Ngoc Anh, Nguyen Dinh Chuc, Doan Quang Hung. Excel Statistical Analysis, Center for Policy Research and Development, Hanoi; c2008.
2. OA Abdoullina. Forming for students pedagogical skills in organizing student education, a collection of reports Minsk - Hanoi Education Publishing House (Translated by Nguyen Dinh Chinh 1980); c1978.
3. Kisegov XI. Forming pedagogical skills for students in the conditions of higher education, Textbook of Pedagogical University I, Hanoi; c1996-199.
4. Xavier Roegiers. Faculty of integrated pedagogy or how to develop competence at school, Education Publishing House, Hanoi; c1996.
5. Obert J Marzano, Debra J Pickering, Jane E Pollock. Effective teaching methods, Education Publishing House; c2005.
6. https://vietnamnet.vn/3-huong-day-tich-hop-trong-chuong-trinh-Giao-duc-pho-thong-moi-497478.html
7. http://www2.hcmuaf.edu.vn/data/dtdanh/XSTK_EXCEL.pdf
8. http://cvct3.edu.vn/tintuc/chi-tiet-tin-tuc/thong-tin/dien-dan-chuyen-mon/co-so-ly-luan-ve-day-hoc-tich-hop/tt.html
9. http://cvct3.edu.vn/tintuc/chi-tiet-tin-tuc/thong-tin/dien-dan-chuyen-mon/co-so-ly-luan-ve-day-hoc-tich-hop-(phan-2)/tt.html