

# Analysis and Exploration of Strengthening the Liveliness of Chemistry Education in Vietnam Senior High School

Nguyen Manh Cuong

*Thai Nguyen High School, Thai Nguyen University of Education, Thai Nguyen 250000, Viet Nam.*

Date of Submission: 28-03-2023

Date of Acceptance: 07-04-2023

**ABSTRACT:** Senior high school is the foundation and key to cultivating national high-tech talents. A rapidly developing economy and increasingly modernized production and production activities put forward severe demands on chemical education in high school and high school. For this reason, it is necessary to study and evaluate the life of modern industrial chemistry education in depth and put forward appropriate methods to propose higher education life, for the comprehensive support of our country's scientific and technological strength.

**KEYWORDS:** Chemical talents; High school chemistry education life.

## I. INTRODUCTION

The Resolution of the 8th Plenum of the Central Committee of the XI session on a fundamental and comprehensive renovation of education and training stated: "Continue to strongly renew teaching and learning methods towards modernity; promote positivity, initiative, creativity and application of knowledge and skills of learners; overcome the one-way imposed transmission, remembering machines.

Focusing on teaching how to learn, and how to think, encouraging self-study, and creating a basis for learners to update and renew knowledge, skills, and capacity development. Shift from studying mainly in class to organizing diverse learning forms, paying attention to social activities, extracurricular activities, and scientific research. Promote the application of information and communication technology in teaching and learning". In order to well implement the goal of a fundamental and comprehensive renovation of education and training according to Resolution No. 29-NQ/TW, it is necessary to have a correct awareness of the nature of innovation in teaching methods in the direction of developing learners'

capacity and competence. some measures to innovate teaching methods in this direction.

The socio-economic development in the context of globalization puts new requirements on workers, thereby also setting new requirements for the education of the young generation and training of human resources. One of the basic orientations of educational reform is to move from an academic, scholastic, and practical education away from reality to an education that focuses on forming action capacity and promoting self students' creativity. An important orientation in the innovation of teaching methods is to promote positivity, self-reliance, and creativity, and to develop students' ability to act and collaborate. These are also international trends in the reform of teaching methods in high schools.

The innovation of teaching methods requires appropriate conditions in terms of means, facilities and teaching organization, and conditions on organization and management. In addition, teaching methods are subjective. Each teacher with his or her own experience needs to identify his or her own ways to improve teaching methods and personal experience.

Renovation of teaching methods is making the transition from educational programs that approach content to approach learners' capabilities, that is, from being concerned about what students learn to care about students' performance. something that can be used by learning. To ensure that, it is necessary to change from the "one-way transmission" teaching method to teaching how to learn, how to apply knowledge, practice skills, and build capacity and qualities. Strengthening learning in groups, and renewing teacher-student relationships in the direction of collaboration are important for developing social competence. In addition to learning the individual knowledge and skills of specialized subjects, it is necessary to

supplement interdisciplinary integrated learning topics to develop the ability to solve complex problems.

The speed of technological development in today's world is staggering, and this speed of development is created by batches of high-quality scientific and technological talents. The future competition is reflected in some aspects of the competition of scientific and technological talents in various countries. After the reform and opening up, my country's economy has developed rapidly, its scientific and technological strength has been continuously improved, and its scientific research achievements have attracted worldwide attention. But it is obvious that the current education system has many signs that it is not suitable for the goal of talent training and economic development. The overly rigid education method has given society the perception that "high school students can do nothing but write questions". Many parents also prefer their children to learn technology rather than receive theoretical education. High school chemistry education has an immeasurable impact on a child's future technological development. It is the requirement of the situation to strengthen the daily life of high school chemistry education, that is, the applicability and interest, improve the initiative of students, and cultivate chemical talents with an innovative spirit. For this reason, this paper puts forward some practical suggestions while conducting research on the necessity of strengthening the life of chemistry education in senior high school.

## II. THE NECESSITY AND IMPORTANCE OF STRENGTHENING HIGH SCHOOL CHEMISTRY EDUCATION

In the general education program, Chemistry is a subject in the group of natural sciences at the high school level, chosen by students according to their career orientation, interests, and abilities. □

In each school year, career-oriented students who need to use a lot of chemistry knowledge can choose three study topics in accordance with their own aspirations and the organizational conditions of the school. These topics are aimed at fulfilling the requirements of deep differentiation, helping students enhance their knowledge and practical skills, applying knowledge to solve practical problems, and helping students form and develop problem-solving abilities. problem-solving and creativity, meeting the requirements of career orientation.

The educational objective of Chemistry is to form and develop students chemical competence and; at the same time, contribute to other subjects and educational activities to the formation and development of students' main qualities and general abilities, especially the scientific worldview; interest in learning and research; honesty; the attitude of respecting the laws of nature, dealing with nature in accordance with the requirements of sustainable development; the ability to choose a career in accordance with their own abilities and interests, conditions and circumstances.

### 2.1. Research on the current situation of high school chemistry education in my country

From 2018 - 2019 onwards, the general education program has reformed, reducing compulsory subjects, and increasing elective subjects.

The recent college entrance examination reform will be a major node in the history of my country's education reform. There are many ways of high school chemistry education in our country, which are introduced and analyzed now.

- "Lecture-acceptance" method. As the name suggests, the teacher in this method is the center of teaching practice and the provider of knowledge. That is what everyone calls "cramming education". For example, when talking about the properties of metals and clarifying the properties of Na in Senior High School Chemistry Compulsory 1, it only explained the chemical reactions of Na with oxygen and water but did not explain the relationship between Na and acid solutions and salt solutions. It is easy for students to think that Na can only react with oxygen and water. Students lack experience in the relevant responses to Na and cannot clearly form a systematic knowledge structure. Therefore, in teaching, teachers can conduct appropriate professional lectures to improve teaching efficiency.

- "Activity" mode. Improve students' enthusiasm and hands-on ability through related hands-on activities, and encourage students to actively learn, analyze, and research, and then have a deeper understanding of chemical knowledge. To give an example, when high school chemistry textbooks introduce a series of metal materials, students are encouraged to actively search for information and deepen their understanding of alloys through a multi-faceted collection.

- "Independent study" method. This method focuses on motivating students to use their own brains, form their own opinions by analyzing cases and textbook knowledge, and ask questions. The teacher is responsible for solving the problems

of the students and making relevant summaries to further improve the students' self-learning ability and self-learning enthusiasm. When talking about "nitrogen dioxide and nitric oxide" in the chemistry textbook, let the students do self-study first, and then let the teacher summarize the speeches of the students, which can significantly improve the learning efficiency.

- The method of "exploration, cooperation and practice". In teaching, this method is beneficial to help students construct their own knowledge system, design relevant experiments through their existing knowledge, and verify the results with hands and brains, which is very conducive to cultivating students' innovative ability.

The above is just a brief overview of high school chemistry education in our country. Based on this, we can understand that there are various ways of high school chemistry education in our country, but due to the influence of the "score theory" in the college entrance examination, in actual teaching activities, most of the students accept the first method, accepting knowledge, taking notes, and doing questions, Correct the wrong question. Such a process is already the core learning method of exam-oriented education. But this is of little benefit to the cultivation of compound chemical talents, and it will even hinder the expansion of students' scientific thinking. As far as the United States is concerned, American high school students do not have such a large academic burden, and they learn more with interest. Interest is the best teacher, which is also one of the important reasons why there are many scientific and technological talents in the United States. This reminds us of the "Question of the Century". With the opening of the college entrance examination reform in our country, high school chemistry education life will definitely be the focus of future education methods.

## **2.2. The requirements of modern social production activities for high school chemistry education - life**

The ultimate goal of education is to cultivate a complete and comprehensively developed person. The core of high school chemistry education is to cultivate a compound chemistry talent with independent thinking ability and the ability to solve practical problems. These are the requirements of real life, that is, modern social production activities. The increasingly modern production activities - agricultural modernization, industrial modernization, etc., as well as increasingly serious environmental problems, all of which require chemical talents to

propose relevant solutions. In order to solve the current production problems, compound chemical talents are the key.

Strengthening the life of high school chemistry education refers to improving the interest and practical application of teaching activities. Let students understand the practical significance of chemistry in life, be able to think chemically in real life, and be able to conduct technical research and other activities, not just for exams and high scores. Interest refers to improving students' learning initiative, self-analysis, and self-thinking in chemical knowledge, and then putting forward relevant theories and problems, laying a solid foundation for future learning. Applicability needs to inject practical factors into teaching activities, such as allowing students to enter chemical plants for practical operations, and enter university laboratories for learning and research.

## **III. SUGGESTIONS ON STRENGTHENING THE LIVELINESS OF CHEMISTRY EDUCATION IN SENIOR HIGH SCHOOL**

### **3.1. Applicability and fun.**

As explained above, the connotation of life is fun and application. This point should be the direction and focus of the change in educational methods. The well-known Nobel, studied chemistry with his teacher when he was young and engaged in chemistry-related industries after university. After the explosion accident, his closest relatives left him, but he still insisted on conducting chemical experiments. If it is not the love and interest in his heart, what can make Nobel so persistent? Therefore, fun is the core content of an educational method to stimulate students' enthusiasm for learning.

Any knowledge is the accumulation of practice and is ultimately applied to practice, which is applicability. Most of our students can write equations and write the periodic table of elements silently, but they are helpless with some of the simplest problems in life. This is not uncommon today. By connecting with society, cooperating with some enterprises, negotiating with university laboratories, etc., many methods can be used to improve students' application ability.

### **3.2. Textbooks and teachers.**

The main carrier of high school chemistry education is textbooks and teachers. The combination of the two determines the quality of the high school chemistry education model, and at

the same time determines the quality of chemical talents in our country.

Over the past few years, our country's teaching materials have been continuously reformed. Our educational predecessors have shed countless sweat on this road and achieved good research results. The annotation content of high school chemistry textbooks needs to be rich. For example, for some chemical products and new materials with less information, some small columns can be added, such as chemistry in life, chemical thinking to look around, knowledge expansion, etc., to broaden students' knowledge.

An excellent teacher can be said to be a guide for students on the path of chemistry, and it is also the focus of strengthening the vitality of high school chemistry education. The teacher's guidance can enhance the charm of chemistry, strengthen its attractiveness, and then improve the learning effect of students. Provide education and training to teachers, so that teachers can clarify relevant education standards and continuously improve their teaching ability. Mr. Sun Jiazhong, a famous chemist and educator in my country, was influenced by Mr. Tang Aoqing's personality charm and profound scientific knowledge when he was at Jilin University. He studied hard and continued to study and study. He made great achievements and made many achievements in fields such as coordination field theory, and trained a large number of outstanding chemical talents.

### 3.3. Family education.

Every outstanding talent is cultivated under the comprehensive influence of various factors. One of the most important is family education. The edification received from childhood has a great influence on a person's growth. In families where all teachers are chemistry teachers, the children's interest and ability in chemistry are generally higher than those in ordinary families. This requires us to give full play to the positive role of family education on students while carrying out educational reforms. On the one hand, a chemistry group can be established to influence students through publicity to parents. On the other hand, chemical knowledge lectures can be given to families in certain areas on a regular basis to strengthen their influence.

### 3.4. Social propaganda.

The rapid growth of mass media, public service advertising, network advertising, book and newspaper publishing, and volunteer advertising are all ways to spread chemistry. Promoting chemistry through familiar things in life can make

students better understand chemistry and more interested in chemistry. For example, the Application of green chemistry in industrial production to protect the environment also gives us chemical knowledge.

## IV. CONCLUSION

The competition in modern society is fierce, and various technologies continue to develop. High-tech talents in big data, e-commerce, robotics, aviation, and even the nuclear industry are working hard day and night, oil, environmental protection, etc. are becoming more and more prominent, so it is imperative to strengthen the life of high school chemistry education and long-term careers must start from the present.

## REFERENCES

- [1]. Wobbe De Vos, A.M.W. Bulte, Albert Pilot (2003). Chemistry Curricula for General Education: Analysis and Elements of A Design. In the book: Chemical Education: Towards Research-based Practice (pp.101-124).
- [2]. Association for Science Education Science practice teaching secondary chemistry (2012). First published in 2012 by Hodder Education, An Hachette UK Company 338 Euston Road London NW1 3BH.
- [3]. ACS Guidelines and Recommendations for teaching middle and high school chemistry (2018). Published by The American Chemical Society 1155 Sixteenth St., NW Washington, DC 20036.
- [4]. Circular promulgating the new general education program. Circular No. 32/2018/TT-BGDĐT, December 26, 2018.
- [5]. <https://moet.gov.vn/van-ban/vanban/Pages/chi-tiet-van-ban.aspx?ItemID=1301>.
- [6]. Dang Thi Oanh (2020). Guidelines for teaching high school chemistry under the new general education curriculum. University of Education Publishers.