

DOI: <https://doi.org/10.34069/AI/2021.47.11.0>

How to Cite:

Wang, M., Zhong, S., & Luan, L. (2021). Editorial. *Amazonia Investiga*, 10(47), 6-8. <https://doi.org/10.34069/AI/2021.47.11.0>

Editorial

Several main reform directions of higher education in China based on "China Education Modernization 2035"

Written by:

Minghui Wang<https://orcid.org/0000-0003-2386-8139>

Ph.D. in Soil Chemistry, Associate professor, Jilin Agricultural University, College of Resources and Environment, China.

Shuangling Zhong (Corresponding author)*<https://orcid.org/0000-0002-8069-318X>

Ph.D. in Chemistry, Professor, Jilin Agricultural University, College of Resources and Environment, China.

Luan Luan (Corresponding author)*<https://orcid.org/0000-0002-2173-2177>

Ph.D. Student, RUDN University, Philological faculty, Russia.

In February 2019, China proposed the medium- and long-term strategic plan "China Education Modernization 2035" with education modernization as its core. It aims to vigorously promote reform and innovation, and realize the modernization of education under the background of the new era from 2020 to 2035. Starting from this plan, we can look forward to the prospects, goals and trends of China's education development in the next 15 years. The research on the modernization of China's education not only helps analyze China's national conditions and focus on the problems of domestic education development, but also provides a certain theoretical reference for the development of global education. In the 21st century with the rapid development of science, technology and society, it is certain that the modernization of education is a test faced by every country. Hence, it is the urgent problem for colleges and universities that how to use high-tech means to help the education process and how to make educational achievements meet the needs of social development.

According to the goals proposed by China's education modernization strategy and combined with the current domestic development, it is possible to predict several major reform directions for China's higher education in the next ten years.

1. Focus on the social practicality of talent training.

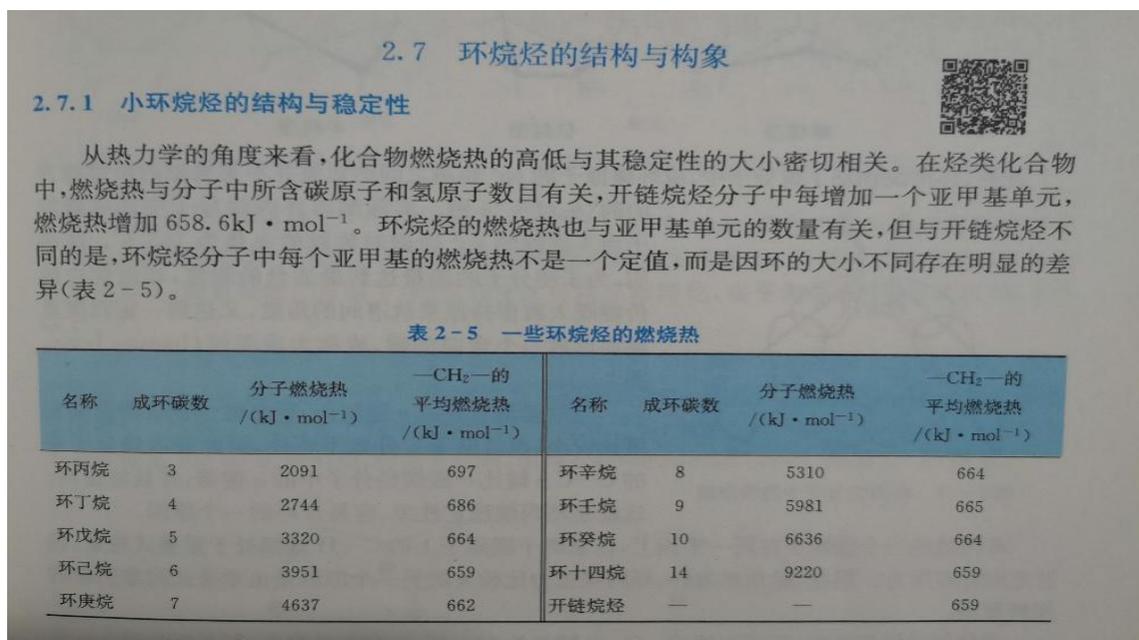
The Chinese Academy of Social Sciences pointed out that China lacks the "suitable" labor force in a 2015 population and labor report (Cai & Zhang, 2015). The total labor force in China is sufficient, but it has structural defects and cannot adapt to the changes in the economic situation. The university graduates often lack professional skills in the labor market. To improve this situation, on the one hand, it is necessary to reform the talent training model through the transformation of educational concepts. Higher education will continue to transform from "teaching-based" to "learning-based". The students' practical and innovative abilities should be actively cultivate to improve the adaptability of professional talents to industry and society (Ke, 2016). On the other hand, higher universities should rationally set up colleges and disciplines, and strengthen the training of students' practical skills while emphasizing theoretical teaching. Measures such as adding professional skills courses and school-enterprise cooperation will help students combine theory with practice during their university period, improve their employability, cultivate high-quality and practical talents for society. On this basis, universities can organize innovative skills competitions and set up entrepreneurial

encouragement policies to establish a new ecology of higher education.

2. Use information technology to create a new teaching model.

Promoting the deep integration of information technology and education and teaching is an opportunity and challenge for the modernization of education in the 21st century. Reasonable use of information technology can improve teaching quality in many ways and promote the development of high-quality, high-efficiency and diversified teaching models. Currently, information technology has already played an important role in higher education. For example, the MOOC platform collects videos of famous teachers from major universities in China. On the one hand, the shared resources can not only develop students' independent learning ability and cultivate all-round talents, but also alleviate

educational barriers and create a high-quality and balanced educational environment. On the other hand, the shared resources can promote the sharing of teaching experience in domestic universities and help improve the professional quality of teachers. Similarly, some university textbooks, such as organic chemistry, have added the online teaching video links (see Figure 1). Students can watch the course explanations by scanning the QR code. During the global outbreak of new crown pneumonia, Chinese universities actively carried out online teaching and had initially established a complete process from pre-class preparation, class sign-in and online question and answer to after-class homework submission and examinations. Online education will continue to play a significant role in the modernization of China's education, and it may become a teaching mode for correspondence education, college elective courses and adult education in the future.



2.7 环烷烃的结构与构象

2.7.1 小环烷烃的结构与稳定性

从热力学的角度来看,化合物燃烧热的高低与其稳定性的大小密切相关。在烃类化合物中,燃烧热与分子中所含碳原子和氢原子数目有关,开链烷烃分子中每增加一个亚甲基单元,燃烧热增加 $658.6 \text{ kJ} \cdot \text{mol}^{-1}$ 。环烷烃的燃烧热也与亚甲基单元的数量有关,但与开链烷烃不同的是,环烷烃分子中每个亚甲基的燃烧热不是一个定值,而是因环的大小不同存在明显的差异(表 2-5)。

表 2-5 一些环烷烃的燃烧热

名称	成环碳数	分子燃烧热 /($\text{kJ} \cdot \text{mol}^{-1}$)	—CH ₂ —的 平均燃烧热 /($\text{kJ} \cdot \text{mol}^{-1}$)	名称	成环碳数	分子燃烧热 /($\text{kJ} \cdot \text{mol}^{-1}$)	—CH ₂ —的 平均燃烧热 /($\text{kJ} \cdot \text{mol}^{-1}$)
环丙烷	3	2091	697	环辛烷	8	5310	664
环丁烷	4	2744	686	环壬烷	9	5981	665
环戊烷	5	3320	664	环癸烷	10	6636	664
环己烷	6	3951	659	环十四烷	14	9220	659
环庚烷	7	4637	662	开链烷烃	—	—	659

Figure 1. Organic Chemistry (Second Edition). Science Press, 2014 (Li, Zhao & Wang, 2014, p. 37)

With the continuous development of information technology, there will be more space to explore in the intelligent teaching. For example, some chemical experiments are not suitable to be carried out in school laboratories for many reasons, such as reactants or products are harmful to the human body, the reactants are not available, or the reaction process is dangerous, etc. For this kind of experiment, the traditional teaching usually adopts the description method or video simulation method. However, these methods do not allow students to experience the process of the experiment personally. Based on this problem,

scholars are actively developing an AR virtual simulation experiment system (Qiao, Bai, Hou & Hu, 2020), and trying to be widely used in the teaching field in the future to achieve better teaching effects. Although the concept of virtual laboratory has been put forward for a long time, it has not been widely popularized in Chinese universities. The authors believe that the integration of AR virtual simulation technology and university education is an inevitable trend in practical teaching in the next few years.

3. Create a new pattern of education opening to the outside world.

In the process of educational modernization, China's higher education will move towards the world stage, gradually realize mutual recognition of academic degrees, exchange of academic standards and cooperation in running schools with other countries. Taking organic chemistry as an example, in 1980, the Chinese Chemical Society formulated the "Nomenclature Principles of Organic Chemistry" based on Chinese habits. With the development of the discipline and the needs of international academic exchanges, the original Chinese naming rules are far from meeting the needs of the development of Organic Chemistry, which has brought many problems to the information exchange and teaching of Chinese Organic Chemistry.

Hence, the Chinese Chemical Society has updated and revised some naming principles. In 2018, the "Organic Chemistry Nomenclature Principles 2017" was published. This revision refers to the naming principles recommended by the International Union of Pure and Applied Chemistry (IUPAC). Some naming rules emphasize the role of English names, such as placing the substituents in the prefix according to their alphabetical order (Zhang et al., 2018). This revision also adopts both Chinese and English nomenclature to facilitate international exchanges. From these changes, it can be seen that China is creating a new pattern of education opening to the outside world and comprehensively improving the level of international exchanges and cooperation.

Generally speaking, by 2035, China will build a high-quality and diversified higher education

system on the basis of socialist modernization, promote the cultivation of innovative talents, make use of the advantages of online education to promote the life-long development of the whole people create a learning society (Liu & Wei, 2021) and promote international cooperation.

Bibliographic references

- Cai, F. & Zhang, Che. (2015). Green Paper on Population and Labor: China Population and Labor Issue Report No. 16. Beijing: Social Sciences Literature Press.
- Ke, J. (2016). How big is the "time difference" between China's higher education and the world's? Recovered from http://econ.cssn.cn/jyx/jyx_zdtj/201604/t20160408_2957507_1.shtml
- Li, Y., Zhao, Sheng-yin & Wang, Yu-lan. (Ed.). (2014). Organic Chemistry (Second Edition). Beijing: Science Press.
- Liu, Hai-feng & Wei, Hua-feng. (2021). To Take a Broad and Long-term View: China's Higher Education in 2035 and the World's Higher Education in 2050. *Journal of Higher Education*, 42(7), 1-10. URL: <http://www.cnki.com.cn/Article/CJFDTotal-HIGH202107001.htm>
- Qiao, Xian-da, Bai, Ping, Hou, Ling & Hu, Yong-bin. (2020). Development of Virtual Simulation Experiment System Based on VR/AR — "Analytical Chemistry Experiment Course" as an example. *China Medical Education Technology*, 34(4), 471-475. DOI: 10.13566/j.cnki.cmet.cn61-1317/g4.202004018
- Zhang, Li-he et al. (Ed.) (2018). Principles of naming organic compounds 2017. Beijing: Science Press.