

From “How to Teach” to “How to Learn”

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Supported by The Fundamental Research Funds for the Central Universities(SWU1409229); Fund of National Social Science (12BZX026).

Received 12 February 2014; accepted 26 June 2014
Published online 26 July 2014

Abstract

Dialectics of Nature, a compulsory course for science and engineering postgraduate students, “service-oriented” teachers should how to teach, and students should how to learn, which are two bidirectional dialectical core units on Dialectics of Nature to achieve a fundamental teaching purpose.

Key words: Dialectics of nature; How to teach; How to learn

Jiang, L., & Sun, D. J. (2014). From “How to Teach” to “How to Learn”. *Higher Education of Social Science*, 7(1), 92-95. Available from: URL: <http://www.cscanada.net/index.php/hess/article/view/5015>
DOI: <http://dx.doi.org/10.3968/5015>

INTRIDUCTION

With China entering the WTO in 2001, Chinese market opening to the outside world gradually, the isolated national entering into the market that is free competition, like the animal being spoiled in the zoo back to nature, it is facing the severe challenge of existence. The urgent need change is deeply ingrained and backward ideas, and then is the practice of reform for all walks of life. Only the unification of thought and practice can make our country stand rock-firm in the family of nations. In

which education is in an urgent reform of prominence, its importance cannot be ignored that teaching of Dialectics of Nature as a reflection of the education reform. However, teachers should be “how to teach”, students should be “how to learn” so that achieve the basic purpose of teaching of Dialectics of Nature, it will be the following discusses the core of the problem.

1. “SERVICE-ORIENTED” TEACHERS SHOULD BE “HOW TO TEACH” DIALECTICS OF NATURE

With the social environment changed, the old teaching mode has does not conform to the current education, for example “preaching” and “infusion”, “rote learning” and so on, which just like a derailed train with passengers to deep death palace, so that can’t arrive at destination. Education and students, education and society, education and future will lose contact, which will lead to education tool value and intrinsic value will be “enter the history museum, like bronze ware and the spinning wheel on display together”.

The teaching method of Dialectics of Nature, it is important not only to engineering graduate students, but also to the educational reform. As is known to all, China’s arts and science division which leads to the serious contradiction between arts scholars and science scholars, either both sticks to his argument, or do not understand each other as “cast pearls before a swine”, they are the long period of enemy; or like a medieval mystery wizard living in the dark forest, only hear sound but do not see its body, both are put on the coat of mysticism. So trained students in social practice activities will inevitably lead to abnormal development of social industry, eventually repeat the way of the Chinese national industry “congenitally deficient, acquired deformity” in the early Republic of China. Arts students cannot understand

Mathematical Principles of Natural Philosophy and On the Revolutions of the Heavenly Spheres theory, science students do not know what is Metaphysics and Dialectics of Nature, now the border of two opposing powers by the exclusivity of the contradictory and impassable gap not only wide but deep intensifying trend more and more clear, from the angle of contradictory unity of opposites, arts and science contradictory is aggravating, the united point lies in Dialectics of Nature, such as in the three parts Dialectics of Nature and the seventh part discusses the problems of the math, science in Dialectics of Nature, and other parts is discusses the problems of philosophy.

Teaching of Dialectics of Nature in engineering graduate students put forward a very high requirement for the teachers, who must have arts literacy and science literacy. While because of the division of arts and science so that most versatile teachers died at the starting point of the crossroads. Arts scholars and science scholars only research its associated parts (of course, there is versatile scholars, but after all is one of the few), it leads to a systematically book were dismembered well into digestible food, while the rest is discarded without pity. In our country, the government efforts to develop the third industry as service industry that contacts with consumers directly. The teaching of Dialectics of Nature is bound to "service-oriented" teaching, and the corresponding is "service-oriented" teachers. "Service-oriented" teacher "how to teach" is involved in dimension of philosophical methodology.

1.1 Teaching Method of "Do Nothing"

In the philosophy of science often use the word "Disenchantment", refers to get rid of the worship of authority, to grasp the essence of things. In the same way, the teaching method must also be "Disenchantment" to achieve the teaching purpose. "Do nothing" teaching method is "Inaction", "Infuse", "Show" and "the Cart before the Horse".

What is the "inaction"? Inaction is attempting nothing and accomplishes nothing in the teaching, but is not Lao Tzu's "inaction" (follow the laws of nature). the specific performance is just to finish the task of class, not to consider the teaching method and effect, teachers mechanically in class, students blindly "feeding", the consequences are teaching and learning become two isolated individuals, it is like a quilt and quilt cover is connected as a whole, while was isolated using as two items, this will be unable to play a role of heat preservation. The so-called "Infuse" is chattering without stop speaking knowledge in the whole class, don't estimate students' ability of acceptance and reaction, teachers become a transmitter, students become a reservoir, the result is the teacher earnestly, students complain about. Active learning methods make classes much more enjoyable for both students and instructors. Even highly gifted lecturers have trouble sustaining attention and interest throughout a 45-minute class. After

10-20 minutes in most classes, the students' attention starts to drift, and by the end of the class boredom is rampant. Even if the instructor asks questions in an effort to spark some interest, nothing much happens except silence and avoidance of eye contact. Tests of information retention support this picture of what happens in terms of recall. Immediately after a full lecture, students were able to recall about 70% of the content presented in the first ten minutes, but only 20% of the content of the last ten minutes. "Infuse" and "Inaction" are two extreme opposites, but it's harmful beyond than "Inaction". This teaching method put teachers and students converted into machine, does the mechanical movement. In the long term, if things go on like this, the innovative spirit of students will be all gone. The so-called "show" is refers to teachers in the teaching just focus on the form of teach and do not pay attention to the essence of teach, various teaching methods emerge in endlessly, teachers lecture with passionate, students attend lecture with worship, but not the essence of the teaching effect. It's like a formal basketball game, players pay attention to fancy basketball, process may be exciting, but cannot reach the desired effect. "The cart before the horse" refers to the upside down in the process of teaching the subjectivity of students and the object of teachers, and take teachers as the principal part, take the student as the object, which will be lead to inaction, infuse, show enter infinite loop.

The performance of an individual student in a class depends on a staggering variety of factors, many of which are out of the instructor's control; moreover, an instructor who sets out to implement all of the suggestions in this paper is likely to be overwhelmed in the attempt and to end by implementing none of them, so instructors should be Disenchantment and inaction in the teaching.

1.2 Teaching Method of "Action"

Jaspers said: "the right way to impart knowledge and skills, which is a spiritual education for the whole person." It is self-evident importance of its teaching methods. With the acceleration of the information age and specialization, knowledge along with geometric multiplication, the people who understand Chinese culture and Western culture, and master its history has been very scarce. Therefore, teachers as a bridge connecting between students and knowledge, how action can achieve the purpose of teaching? service-oriented teachers as a link connecting students with knowledge, as a bridge connecting the two sides, the core requirements is hardcore, which requires teachers to constantly recharge themselves, conquer students with profound knowledge, all the other teaching methods are established on this basis, otherwise, teachers cannot stop something with nothing. Dialectics of Nature is very obscure, if students have not a deep foundation of philosophy, who will fail to find direction. Enhance

continuously their professional knowledge and expand their scope of knowledge is teacher done first, doing and must do work. Only in this way can teachers from shallow to deep, explain profound theories in simple language, the abstract theory compared to the vivid story, students can better grasp the profound theoretical knowledge.

From Han Yu’s “teacher who is imparting knowledge and answer questions” return into Lao Tzu’s “giving some food to help him is not better to teach him tools; giving tool is not better to teach him thinking”. Socrates once said: “Wisdom means knowing ignorance”, His phrase is very appropriate for teachers who live in the era of knowledge explosion, as like the German scientist Hagen noted that even if a scientist today do not eat, do not sleep, no rest, working 24 hours a day, and can only read a small part of their professional knowledge, which is about 5%. The ability of teachers to impart knowledge and solve problems is limited in a certain range. The teacher is a role teaches people to use methods and thinking. For example, when explain Dialectics of Nature to engineering graduate students, teachers should teach students is dialectical thinking, the dialectical relationship among human and nature, natural science and philosophy, practice and theory and so on, it will be guide the future life and work better. Teachers should give full play to the guiding function of initiative in teaching, who play making advantage of the diverse teaching, and making full use of practical network multimedia teaching. In the process of lecture should combine with multimedia, there is can cite many examples of relevance, such as Denmark physicist Forested was encouraged in the unity of philosophical beliefs, linked to electric and magnetic phenomena, which found that electromagnetic effect. For example Russian chemist Dmitri Mendeleev discovered the periodic table of elements in quality exchange law, illustrate that the philosophical thinking for scientific research of inspiration and guidance is indispensable, stating that if there is no philosophy speculative thinking, many important scientific discoveries are impossible. Can also be the self-transcendent Euclidean geometry and Einstein’s general theory of relativity as examples to illustrate “observed penetration theory” are a famous proposition? Comments by watching videos and interactive, “teaching how to fish”, that can cause engineering students learning resonance, thereby triggering interest in learning Dialectics of Nature, which is bound to play a multiplier effect. When commenting, the viewpoint must be novel and unique; this is a very important factor to attract students. Not limited to the view of teaching materials, teachers should have their own unique view about problem, let knowledge from abstract to concrete, from complex to simple, drive students to develop creative thinking, which is benefited in their whole life, especially for engineering graduate students. Innovation is the core of research work to engineering graduate students, if they

learned creative thinking ability in learns Dialectics of Nature, so its teaching effect will achieve success and win recognition. Overall, the teacher not only to Dialectics of Nature textbook explain profound theories in simple language, but also have a keen observation, good at capturing life’s hot and focus problems, and then integrate the newest hotspot into teaching, let abstract knowledge become more visualization, so that teaching can be great vitality and persuasive. Therefore, when teachers imparting Dialectics of Nature should teach students how to fish, at the same time, should play service value in order to boost engineering students’ initiative to learn Dialectics of Nature. Of course, the methods are to improve students thinking abilities with opening idea.

I hope is that readers will consider all of the suggestions in the paper in light of their teaching styles and personalities and attempt to adopt a few of them in the next course they teach, and then perhaps a little more in the course after that. While we cannot predict the extent to which the techniques will succeed in achieving the instructors’ objectives, we can say with great confidence that their use will improve the quality of learning that occurs in those classes.

2. “SUBJECTIVITY” STUDENTS “HOW TO LEARN” DIALECTICS OF NATURE

2.1 Establish Knowledge Belief

In education, teachers is just a coaching role, its essence is guidance function and service learning, ultimately depend on our subjective initiative by the subjectivity of the students themselves. As is known to all, the development of things is the interaction of internal cause and external cause. Internal cause plays a decisive role. Predecessors’ words: “teacher introduce door, practice in person.” Chinese education is “highly educated, low level”; other countries looked down on Chinese education. As graduate students, if you want to change this situation and to make achievements in the academic, we need to do first is to establish goals, to improve the level of academic, we should establish knowledge belief, what is the lack of most students, this is our country contemporary why can’t cultivate world’s top talent. Our education won’t help us to establish the concept of adoring knowledge, our learning is to find better jobs, and to make much money in the future, so that leads us to set up the worship of money. However, on the contrary, our education is to live a better life. Money is just the material basis of our life; our higher life level is to satisfy our spiritual life. The rapid development of market economy chain leads should be slowly forward learning for chasing instant success, eventually lead to learn nothing and lost the direction of life. Establish knowledge belief in addition to rely on external factors, the most important still

depends on internal factors. Therefore, students should clear learning have two purposes: The first is to achieve own happiness of life, and the second is to realize the happiness of mankind. The primary purpose is living, and then struggle for the common interests of mankind. Primitive accumulations of knowledge and innovation are the two most basic and the core of spiritual tools, if we lost, there is no essential difference between man and animals. So traced back, when we learn any knowledge, we first priority is to establish the knowledge belief (the pursuit of happiness), from specific experience realize the importance of knowledge, So as to beyond the surface of knowledge and to grasp the true knowledge, otherwise study will become no engine car, become chicken ribs.

2.2 Drill as Like a Nail

Nails have two advantages: one is the “squeeze” another is the “drill”. We should advocate this spirit of nails and is good at squeezing and drill on our learning. (From the Diary of Lei Fang) after established goal and knowledge belief, we must play Lei Feng’s “the spirit of nail”. In terms of the present situation of labor refinement and division, our study has to professionalization and docking with society, this is like a nail, finds a point, based on this point to drill, more goes inside more harvest. Graduate students must contribute to drill can be professionals. Of course, no drills no profession. Engineering graduate students must play the spirit of drill in learning Dialectics of Nature, there are two reasons: one is to expand their thinking, cultivate their innovative thinking ability, make its study get twice the result with half the effort; another is good for their life and work, contribute to obtain happiness. As is known to all, Marx had spent 5 years to write *Das Capital* in London, at the same time, this also is the most suffering period of Marx’s life. In the five years, Marx because of economic and debt problems, mental anxiety, suffering from the disease in a bad mood, three children have died. But he was in such an environment to write the great *Das Capital*. There is no doubt that in addition to have a firm belief, Marx is held on the spirit of drill. If there is no drill, stay on the surface of Dialectics of Nature, rather than wasting time, why not practice.

2.3 Set Up New Concept

March 18th 1978, Deng Xiaoping’s speech at the Opening Ceremony of the National Conference on Science said that “Science and technology constitute a primary productive force”. The development of science and technology is driven by innovation and international competition of comprehensive strength, its essence is the competition in innovation ability, so the cultivation of the innovative thinking ability is the key. When we are learning Dialectics of Nature cannot be numb conservative to recite the text, we should take the problem and with colored eyes to learn. Not

only teachers’ viewpoint should be novel and unique in teaching. Students should take their opinions in learning, independent thinking, and not repeat word what others say, blindly follow the trend. “New” has three meanings: the first is the new point; the second is innovation; the third is developing a school of one’s own. The new idea is to view or idea different from others, which requires when you read Dialectics of Nature refer to others ideas, on the basis of this, see others have not been noticed, and to summarize, and then draw their own new ideas. Innovation requires us to improve or create new things, method, element, path, environment, and can get a good effect, which refers to on the reformation of the course of dialectics of nature from the perspective of innovative education. Finally the fusion of new ideas and innovation, with rigorous logic, formed its own theoretical system or new things. Especially in the academic, if you want to reach high you must first have their own new ideas, and innovation, finally develop a school of one’s own. Newton said: “if I have seen farther than others, it is because I stand on the shoulders of giants. Dialectics of Nature is also following this truth, according to this truth, with new view clamps down old view, so as to promote the growth of knowledge and the progress of society. Engineering graduate students the purpose of study Dialectics of Nature is cultivating dialectical thinking ability and innovative thinking ability.

“Establish”, “drill” and “new” are made up of nonlinear organic whole of study. Establish is the foundation and the power, set up goal and ideal; drill is reaching the method of goal the ideal; new is purpose, to achieve their own value and collective value ultimate embodiment. Establish, drill and new is not only engineering graduate students study the method of Dialectics of Nature, and by extension is that all students the way of study. Only in this way can improve the teaching of Dialectics of Nature and college students’ scientific accomplishment.

In a word, “service-oriented” teachers’ action and “subjectivity” students’ initiative play a fundamental role in the teaching of Dialectics of Nature.

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