

## Sino-U.S. Joint Doctor of Veterinary Medicine (DVM) Training Program Writes New Chapter in Sino-U.S. Veterinary Education Collaboration

--- Interview with Professor Ming Wang, College of Veterinary Medicine, China Agricultural University

*Journal of World Education* Reporter / Jianhui Xiong Ya Pan

### I. Issues Faced by China's Veterinary Education

*Journal of World Education:* You have dedicated several decades' work to veterinary medicine research and education. Based on your understanding of China's veterinary education, can you first talk about the issues and challenges it currently faces?

*Ming Wang:* The most significant issue faced by China's veterinary education is a lack of refinement in the training mechanism. At present, China does not have the kind of rigorous, scientific veterinary school education assessment and accreditation system used in the U.S. Some of our domestic veterinary medicine colleges do not even have a decent animal hospital, so it's easy to imagine the difficulty of developing clinical veterinary training. In some schools, as long as students can find internships and get proofs for internships, they can graduate. This is not the way to train qualified veterinarians.

In October 2009, the Chinese Veterinary Medical Association was established, which is the first such organization in China. The Ministry of Agriculture also established policies for veterinarian qualification examinations, which standardized the requirements for individuals who want to practice veterinary medicine. After a pilot run in five provinces and municipalities in 2009, the National Standard Veterinarian Qualification Examination is held once a year starting in 2010. If you want to practice veterinary medicine, not only do you need to have veterinary medicine or related degrees, you also must pass the examination. Only by passing the examination can you get registered to practice and to prescribe medication. This has changed our previous situation in which there were no entry-level standards in the veterinary medicine profession. In the future, the number of students who participate in the veterinarian examination and their success rate will become an important factor to evaluate the quality of education in veterinary schools.

The problems faced by China's veterinary education include that of education philosophy, teaching methods, and teaching conditions. First, we must be clear that the goal of veterinary medicine Bachelor's programs is to develop qualified veterinarians. Qualified veterinarians need learning as well as practice. However, currently, universities provide students with few opportunities for experiments and clinical training. Students sit in large-size classes to be fed knowledge, wait till the last minute to prepare for written exams that emphasize rote learning, and then hastily look for internships and jobs—and their four years of education is gone. Most universities do not yet have qualified clinical teaching hospitals, no inpatient cases for follow-up studies, and insufficient cases for students to practice. Therefore, not only should we establish standards on who can practice veterinary medicine, we should also evaluate and certify the level of teaching that goes on in veterinary colleges. Doing so will change the status quo in the universities and gain recognition from the industry and society. In this respect, we will need the support from the industry and education sectors.

**Journal of World Education:** In your opinion, what are the differences between the veterinary education evaluation systems used in China and in the U.S.?

**Ming Wang:** In China, the Ministry of Education regularly conducts undergraduate teaching evaluation, but this is an evaluation of a university's overall performance in undergraduate teaching and focuses primarily on a university's teaching facilities, teaching conditions, teaching staff, curriculum design, course management, etc. It is a general requirement of undergraduate education and does not particularly reflect any disciplinary features or industry requirements.

In the U.S., there are very specific evaluation criteria for veterinary schools. These criteria, generally speaking, are based on two core principles:

The first principle is student-centered. All the teaching arrangements and teaching models serve the students and center around the students. The second principle is career-oriented. How students are trained is based on what the veterinary industry requires of students in terms of knowledge, skills, and accomplishments. In other words, in the U.S., veterinary student training and industry requirements are closely related.

I think we should have different evaluation criteria for different professions and industries. Veterinary education has a strong focus on medicine and emphasizes practice, so the evaluation should focus on students' hands-on ability to get things done. In the U.S., the evaluation criteria for veterinary schools also include several quantifiable indicators, such as the number of dissections each student performed during the four-year veterinary study on large animals as well as small animals, the number of cases handled by the animal hospital each year, and so on. Clinical practice is an integral part of medicine, so to train a qualified veterinarian, veterinary schools must provide students with a certain number of clinical cases to apply their learning. If students do not have sufficient opportunities to try their hands on cases, it will be very difficult for them to apply the knowledge they learn to solve practical problems. Only through knowledge learning, skill building, and clinical practice can students gain feedback on what works and what doesn't and develop into qualified veterinarians.

In the U.S., veterinary colleges and schools are accredited by the American Veterinary Medical Association once every five years. Currently, there are 28 accredited veterinary schools in the U.S. Students who graduate from these schools can participate in the national veterinary qualification examination; those graduated from unaccredited schools must participate in more rigorous veterinary examinations. U.S. Department of Education acknowledges the American Veterinary Medical Association's accreditation, and the education sector and the veterinary industry sector work together. Having the industry evaluate and accredit veterinary education is a strong external force to promote veterinary education reform.

**Journal of World Education:** Does China currently have any rankings for veterinary schools or programs?

**Ming Wang:** No. At this time, we only have "disciplinary level" evaluations from the Ministry of Education, which include Level 1 and Level 2. This evaluation is conducted about once every

five years. According to this year's evaluation results, China Agricultural University, as it was in the past, is still ranked as Level 1. Although this evaluation is performed on veterinary medicine, the core indicators focus primarily on areas such as teaching staff and scientific research. Compared with the U.S. evaluation of veterinary schools, our evaluation system, criteria, and nature are different. Our evaluation criteria focus heavily on research outcomes and faculty and do not, to a great extent, reflect the level of undergraduate veterinary education.

## II. Background of the Sino-U.S. Joint DVM Training Program

*Journal of World Education:* In August 2012, the China Scholarship Council sent the first group of students selected from China Agricultural University and Huazhong Agricultural University veterinary colleges to Kansas State University for one year of pre-veterinary study. As one of the initiators of this project, please tell us about the background of this Sino-U.S joint DVM training program.

*Ming Wang:* Actually, Sino-U.S. joint DVM training has a rich history. In the early 20<sup>th</sup> century, excellent students had been selected to study for DVMs in the U.S. or Europe with government funding. After these students returned to China, they established many veterinary schools, offered Western veterinary medicine curricula, and built the foundation for China's modern veterinary education and disciplinary development. These founding members include Professor Qingsheng Luo at Nanjing Agricultural University and Professor Dashi Xiong at China Agricultural University.

Since the 1978 reform and opening-up, the number of government- and self-funded students who study in the U.S. continued to increase. Many obtained PhD degrees and returned. However, there has not been anyone who completed the four-year veterinary education in a North American veterinary school or obtained a DVM in the U.S. Although there are a considerable number of Chinese veterinary school graduates who study in the U.S., all of them are studying for PhD degrees. At present, in the entire Asia, the number of people who obtained DVMs from the U.S. is low; in China, there are less than 10 of them in the last 100 years, so it is a very rare degree. DVM is not just an academic title, but a sign of vocational veterinary education. It is very impressive for a student to obtain a DVM in the U.S.; in a sense, it is more difficult to do so than to obtain a PhD.

*Journal of World Education:* Why is it so difficult to obtain a DVM in the U.S.?

*Ming Wang:* First, U.S. veterinary schools primarily admit U.S. citizens alone. Many schools do not admit international students. Even if they do, the numbers are very small—one-two students per year at the most. Even for American students, the admission rate to veterinary schools is only 8% to 10%, so the competition is fierce.

Second, the U.S. has different curricula and education levels. U.S. DVM education requires at least three years of pre-veterinary education before students can be accepted into veterinary schools for four years of veterinary education and training. In China, veterinary undergraduate education is four-five years, so our education and training level is much lower than that in the U.S. Many veterinary Bachelor graduates from China do study abroad in Europe and the U.S.

For instance, about 10% of the graduates from China Agricultural University's College of Veterinary Medicine would continue their education in Europe or the U.S., but most of them go for PhD programs and nobody goes to veterinary schools. Even though China Agricultural University has a "2+2" Sino-U.S. joint training program, our veterinary sophomore students, when they go to the U.S. partner university, have to change their majors to Animal Science or Animal Nutrition and cannot join the veterinary medicine college.

Finally, the tuitions at U.S. veterinary schools are very expensive—about \$40,000 to \$60,000 a year. The average Chinese family cannot afford it, whereas the rich kids do not want to choose this profession. Plainly put, without government funding, average families cannot afford DVM education, rich families do not want their children to study for DVMs, and the few who can afford it and want to study for it may not be qualified.

### III. Success Factors for the Sino-US Joint DVM Training Program

*Journal of World Education:* The U.S. is internationally recognized for having the world's leading veterinary education system and rigorous accreditation system. What do you think are the factors that have contributed to the success of the Sino-U.S. joint DVM training program?

*Ming Wang:* First, let me talk about the origin of our collaboration with Kansas State University. We have an alumnus who teaches at Kansas State University, Professor Jishu Shi. He graduated from China Agricultural University, obtained a PhD from Kansas State University College of Veterinary Medicine, and about 10 years later, returned to teach at Kansas State. He understands the needs of China as well as the needs of Kansas State University and the state government, so he was able to connect all these parties and help us communicate with each other. The earliest report submitted to the China Scholarship Council, then, was co-written by the two of us from the two sides of the Pacific. Later, we approached the Dean of the College of Veterinary Medicine at Kansas State University with this program and gained his approval and support.

*Journal of World Education:* What led this program to fruition?

*Ming Wang:* Primarily through the communication and exchange between the Chinese and U.S. partners. First, we must thank the work done by Kansas State University. They not only assumed the cost for Chinese students' one-year pre-veterinary study, but also connected us with five other top international veterinary schools where students can join for DVM programs after the pre-veterinary study. At the same time, we must also thank the China Scholarship Council for their understanding and support of this program. The cost for training one DVM is equivalent to the cost of training four PhDs, because the annual tuition for a DVM student is more than \$60,000. Multiplied by four years, and the cost is \$240,000. This does not even include the one-year pre-veterinary cost assumed by Kansas State University, who is actually paying for 1/5 of the cost. The Chinese Veterinary Medical Association is very interested in and supportive of this collaboration. As the Association's Education and Technology Committee chairman, I am particularly willing to contribute to the program.

*Journal of World Education:* Why are the international partners interested in this program?

**Ming Wang:** Kansas State University is a public university and is funded primarily by the state government. Without the support of the Kansas state government, it will be difficult for us to collaborate. The Kansas state government is very interested in collaborating with China and promoting Sino-U.S. exchanges, so it is highly supportive of the collaboration we have with Kansas State University. In addition, Kansas State University gained the support of some internationally renowned American companies such as Pfizer.

**Journal of World Education:** So, the Kansas state government is actually interested in strengthening collaborations with China, including finding commercial opportunities in China?

**Ming Wang:** Yes, there are definitely such motivations. Professor Jishu Shi is a very warm and capable scholar and he cares deeply for China. He understands the needs of China, the importance of veterinary education, the differences between Chinese and American veterinary medicine, and the Kansas state government's motivation to establish collaboration and exchanges with China.

So, among other factors, the following are the main factors that contributed to the establishment of the program: individual people's active planning and personal contacts, the state government's encouragement, Kansas State University's active cooperation, and the China Scholarship Council's strong support.

#### IV. Model Used by the Sino-U.S. Joint DVM Training Program

**Journal of World Education:** What is the training model used by the DVM program?

**Ming Wang:** Currently, we have the "6+6" collaborative education between six Chinese universities and six U.S. universities. The six Chinese universities are China Agricultural University, Nanjing Agricultural University, Jilin University, Northwest Agriculture and Forestry University, Huazhong Agricultural University, and Inner Mongolia Agricultural University. Each year, we select three-six veterinary Bachelor graduates from these universities to complete one year of pre-veterinary study at Kansas State University and then complete a four-year DVM program at one of the six U.S. veterinary schools.

The Bachelor curriculum at China Agricultural University's College of Veterinary Medicine consists of five years: the first-year curriculum includes general education courses, the second and third years address major foundational courses, the fourth year includes major courses, and the fifth year is clinical practice and research training. Our first three years' courses are actually relatively similar to those offered in the U.S. pre-veterinary curriculum, so our initial plan was to send our junior-year students to the U.S. to shorten the training period, but this plan is somewhat difficult to implement. There are three reasons for this: First, U.S. universities have a fairly high requirement on international students' English language skills. Without the language skill, students cannot be admitted. Chinese students need to develop their English skills and adapt to the U.S. learning environment, so they still need one year of pre-veterinary study before transitioning into formal DVM education. Second, if students do not complete four or five years of study in China, they will not be able to receive a diploma from Chinese universities, which also poses a problem. We had initially planned for Chinese and American universities to

mutually recognize each others' courses, but the last year's courses on the U.S. pre-veterinary curriculum are not identical to our 4<sup>th</sup> and 5<sup>th</sup>-year courses. Third, the China Scholarship Council primarily funds graduate students, so only when students graduate from Bachelors' programs can they be funded.

In order to advance the program, the Dean and faculty of College of Veterinary Medicine at Kansas State University came to Beijing earlier this year to conduct student interviews. Those students who passed the interviews will get their Bachelor's degree diplomas issued by the Chinese Ministry of Education in June and will be able to join Kansas State University in September. We have signed a memorandum of understanding with Kansas State University and have an agreement with five other veterinary schools in the U.S. Students can enroll in these veterinary schools for their four-year DVM programs after they complete the one-year intensive pre-veterinary study.

### **V. Challenges Faced by the Sino-U.S. Joint DVM Training Program**

**Journal of World Education:** In your opinion, what are the challenges faced by the program? Last year, a group of students already went to the U.S. to start their pre-veterinary study. What do they think of their studies in the U.S.?

**Ming Wang:** The program faces two challenges. First, the biggest challenge lies within the students themselves. For students who are selected, in order to adapt to the life in the U.S., they must first overcome the language barrier. The U.S. and China also employ different teaching methods. In the U.S., the emphasis is on skill development whereas in China, the emphasis is on learning knowledge from textbooks. U.S. veterinary schools provide many opportunities for practice. How to turn textbook knowledge into abilities, into hands-on skills—that will be a challenge for the students.

We select the best veterinary students from key veterinary colleges in China. All the expenses are paid for by the government, and the competition is open and fair. All the students who have been selected are not afraid of difficulties, are willing to take on challenges, and are disciplined and hardworking. For many students, studying for DVMs in the U.S. takes courage. Without long-term goals and high career aspirations, they will not be able to handle it.

The second challenge is to ensure that when students come back, their values will be fully realized. These days, we have very high requirements for students who wish to teach at their alma maters. Whether they are doctoral students, postdoctoral fellows, or students returned from overseas, it is very difficult for them to seek a position at China Agricultural University. One needs the recommendation from the college's academic committee and must participate in a defense at the university's personnel committee. The competition is fierce.

Therefore, we need a new evaluation mechanism. DVMs from veterinary medicine colleges are to engage in clinical work. It is already quite an accomplishment for students to graduate from DVM programs. When these students return home and wish to work at their alma maters, it is not reasonable to require that they publish a number of articles in high impact-factor journals.

We need a different policy for DVMs and cannot use the quality and number of published articles for evaluation. Unlike PhDs, DVMs are not required to publish research papers.

The veterinary medicine college deans, the Ministry of Agriculture Veterinary Bureau, the Chinese Veterinary Medical Association, as well as the China Scholarship Council are already aware of this. Otherwise, the China Scholarship Council would not have supported this program. If we spend four times the amount of money required for PhD training to train DVMs but do not fully use these talents when they come home, that would be very sad.

So, I think university presidents need to change their mentalities and to fully understand the nature and essence of veterinary medicine education. They need to understand the internationalization trend of veterinary education, the relationship between veterinary education and animal health, and the relationship between human health and environmental health. If the presidents do not have these understandings, the veterinary college deans will not be able to do much, because it is primarily the presidents who decide upon policies and standards.

I think universities should give their promise to the veterinary colleges and preferably have the selected students sign a contract before they obtain government funding to study abroad. This contract is binding for both parties: students must return to their alma maters after graduation and their alma maters must employ the returnees who have completed their studies. We need to make plans and arrangements so these government-funded DVM graduates will teach in veterinary schools. The universities should give them priorities in employment and let them show their values. I think this is our initial purpose in sending students abroad for DVM education.

We plan to send 50 students in 10 years, three-six students per year. It is more important to have quality than quantity. My opinion is not to send dozens of students at a time, but to continue sending them for years to come. This way, after four-five years, we will have a few students coming back every year. It will be quite an accomplishment if we can train 50 DVMs in 10 years. It would be great if every agricultural university veterinary college has a DVM.

**Journal of World Education:** How much change can one DVM make in a veterinary medicine college?

**Ming Wang:** This will depend on the kind of work assigned to the DVM by the veterinary college dean: how is the DVM engaged in clinical practice, teaching, and even management so he or she can apply to Chinese veterinary education what was learned in the four years at the U.S. veterinary college. I even hope one day some of these DVM students will become veterinary college deans.

## VI. Significance of the Sino-U.S. Joint DVM Training Program

**Journal of World Education:** What is the significance of this collaboration, especially for China's veterinary professional training and veterinary education?

**Ming Wang:** First, there is the historical significance. As early as the Qing era, there were government-funded students who studied for DVMs in the U.S. It's been more than 100 years

since then, so this collaboration re-opened the door to Sino-U.S. exchanges in veterinary education. The last Chinese DVM who returned from the U.S. was Mr. Hongzhang Wang, and that was more than 60 years ago in 1949. This collaboration provides Chinese students a means to study at U.S. veterinary colleges, which is a milestone event. We hope that through this method, we can strengthen the exchanges and educational interactions between Chinese and U.S. veterinary schools. In the future, we may be able to invite U.S. professors to visit or teach at our veterinary schools.

Second, it has significance for China's future development in veterinary education. I think for veterinary schools, training qualified veterinarians should be their first priority. I am not saying that training graduate students is not important or publishing articles is not important. Rather, I think we do not currently have enough investment in undergraduate veterinary education and are limited by the "disciplinary level" evaluations. We are constrained by "hard indicators" such as the number of high-level articles, the number of research projects, or the number of achievement awards. Often times, the most important foundational education, our undergraduate veterinary education, is overlooked. I think this is the area where we need more emphasis. The exchange between China and the U.S. will have a significant impact on enhancing China's veterinary education and promoting the standardization of veterinary education.

The third significance lies in the internationalization of veterinary education. Global standards for veterinary education are currently being established. Mutual recognition between countries and regions in their veterinary education is an inevitable trend. "One World, One Medicine" is a global consensus.

The fourth significance is a personal one. I am the vice president of the Chinese Veterinary Medical Association, the chairman of the Association's Education and Technology Committee, and also the chairman of the Ministry of Education Veterinary Medicine Teaching Steering Committee, so I belong both to the education sector and the practicing sector and understand both sides. Having worked for so many years in veterinary education, I am very happy that I can contribute to this collaboration before I leave the position of Dean of College of Veterinary Medicine at China Agricultural University. This is an important landmark in my education career.

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