The Analysis of Continuing Education Operating Mode in Beijing Association for Science and Technology

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Abstract: In recent years, Beijing Association for Science and Technology (BAST) and its affiliated organizations took advantage of their strengths and accomplished continuing education activities in close connection with Beijing's economic and social development needs. In meeting the demand of numerous scientist and talent, BAST helped to popularize and disseminate scientific and technological knowledge in various forms, offering full time and part-time continuing education training, and special training for scientific and technological professionals. BAST gradually strengthened the cooperation and exchanges at home and abroad. Beijing’s scientific and technological organizations have made great contributions to the development of talents, the construction of human resource capital, and innovation of scientific research and development. This article presents BAST and its affiliated organizations’ successful practices, experiences and effectiveness in continuing education in five different aspects.

Keywords: Beijing Association for Science and Technology; continuing education; operating mode, practices

Beijing Association for Science and Technology (BAST) has set up its own continuing education networking system and operational mechanism. Many affiliated organizations (STOs) have established special continuing education management service departments relying on their own industrial advantages. BAST has carried out continuing education to service its member organizations by utilizing different approaches, formats and modalities in meeting with economic and social developmental needs. Science and technology hot topic lectures were organized to promote new theories and new technologies using part-time and full-time education training methods. BAST plays a vital role in improving science and technology communities’ professional quality.

BAST’s continuing education programs are closer to the needs of STOs members compared with that of the government and university. The characteristics are scientific and technological promotion combined with science popularization, and a large education market within their system. BAST constantly explores the continuing education operating mode and has achieved substantial results. This article presents BAST and its affiliated organizations’ successful practices, experiences and effectiveness in continuing education in five different aspects.

I. BAST Continuing Education Working System and Operational Mechanism

BAST was established in July 1963. As of the end of 2012, BAST has a total of 192 municipal societies, associations, institutes, and foundations. There are 28 scientific associations, 52 engineering associations, 17 agricultural associations, 25 medical associations, and 40 science popularization and interdisciplinary associations. BAST also has 16 district or county level associations, 376 grassroots organizations, such as enterprises and public institutional associations, university associations. Members are up to more than 400,000 people.

BAST has a complete continuing education networking system and an operating mechanism. BAST implements the Constitution of China Association for Science and Technology (CAST). The 17th item of the constitution clearly specifies continuing education and training work. The 35th item clearly stipulates that “municipal associations shall accept the leadership of BAST, and undertake tasks commissioned by BAST, accept the corresponding guidance of national associations.” The preface of the Guidance Manual of Organization and Management of Scientific and Technological Social Groups issued on February 26, 2013 pointed out that: BAST, as one of the first municipal hinge type social organizations determined by the Social Work Committee of Beijing Municipal Party Committee and the leading Group for Construction of Social Work, BAST should fully play the role of hinge type organization, perform responsibilities of contact, service and management towards scientific and technological social groups, promote the standardized management of organization construction, and ensure healthy and orderly development of the affiliated social groups and organizations.

After many years of practice, under the care and leadership of the municipal government, with long-term cultivation and positive efforts of old and new scientists and technology professionals, the main works and activity of the municipal associations and their affiliated societies and grassroots organizations have formed their basic working mode: domestic and international academic exchanges, propagation and popularization
of science and technology, science and technology training, science and technology consultation services, communication services of science and technology professionals, and creation of a home base for science and technology professionals. BAST has assumed and undertaken the responsibilities of providing assessment and evaluation of its member institutions.

In 2012, BAST completed multiple activities, such as Science and Technology Week, Academic Month, Science Popularization Day, Quarter Conference of Science and Technology, research and study class, advanced training, seminar, expertise forum, academic forum, international exchange program and other activities. BAST organized 1,287 domestic and international academic exchange activities, exchanged 23,993 papers. BAST also organized 1,651 thematic popular science exhibitions, 104 public lecture of science and technology by academicians, 676 continuing education training classes that trained 73,247 individuals, completed 2,079 science and technology consulting services. Several millions individuals participated in the activities organized by BAST in Beijing.

The affiliated associations or societies of BAST at all levels have placed continuing educations as one of the essential tasks and have taken continuing education as an important work. A lot of associations had established special continuing education service agencies or educational institute. Educational Institution strengthened the construction of teaching staff, equipped with high quality specialized managers and staff, improved the construction of software and hardware condition to provide better operation environment and developmental space. BAST made the contribution to promote the development and popularization of science and technology, combination of technology and economy, and growth and improvement of talents.

II. Rely on Industrial Advantages to Perform Continuing Education in Servicing Members

Most of STOs and societies of BAST were set up based on the industry in their respective fields. Each association relies on its own industry and has its own website. Continuing education are designed to satisfy members’ needs, delivered in multi-formats through multi-channels at multi-levels, and tightly linked with economic and social market development. BAST made great contributions to human talent development, human resource construction, and research and development innovation in Beijing.

1. Organize Hot Topic Seminar on Promotion of New Theories and New Technologies

In recent years, BAST has held many kinds of science and technology Hot Topic’s seminars. On June 22, 2012, BAST organized a special seminar called Internet -Current Status, Its Future and Challenges for its full-time and part-time personnel. Professor Baoxian Zhang from the Graduate School of the Chinese Academy of Sciences (CAS) introduced the development, status and roles of the Internet of Things. Through the application examples of Internet of Things in production and living, Prof. Zhang lively explained the outstanding characteristic of Internet of Things, social influences, development and thinking.

On June 14, 2013, Beijing Adhesion Society held “The Third Green Adhesive Application and Development of Food Packaging Technology” forum seminars in Beijing Science and Technology Activity Center. For the present situation of China's packaging adhesives applications in the food industry, the importance of environmently friendly adhesives in food packaging applications was explained to enhance food packaging safety awareness.

On July 2, 2013, full-time and part-time staff of BAST listened to the special report named “3D Printing and Social Manufacturing”. Feiyue Wang, the Director of The State Key Lab of Management and Control of Complex Systems from the Institute of Automation, CAS, introduced 3D printing technology, development status at home and abroad, manufacturing of core values and prospects etc. Items, such as vases, glasses, wrenches, and others produced by 3D- printer were exhibited.

From July 2 to July 5, 2013, “School Tuberculosis Epidemic Monitoring and Disposal Training Class” was held at the Beijing Conference Center. Beijing Anti-tuberculosis Association and Beijing Research Institute for Tuberculosis Control organized the training class. More than 80 professionals who came from the disease prevention bodies and university hospital from 11 different provinces participated. Famous experts from National Tuberculosis Prevention and Control Center, Beijing Chest Hospital, Beijing Institute of Tuberculosis Control, Peking Union Medical College Hospital gave the lectures. The TB Prevention and Control Institutes in Haidian District and Changping District separately introduced their experiences of TB epidemic monitoring and organization management.

2. Popularize Science and Technology Knowledge in Various Forms

BAST performed science and technology popularization and promotion in various forms. The end of 2013, BAST set up 293 media science popularization windows to cover 16 districts and counties across the city.
All media science popularization windows were used at the National Science Day, and Beijing Science and Technology Week.

Tongzhou District of Association of Science and Technology (AST) took 10 Research Projects to study the media science popularization windows, digital science popularization library and player. These modern science popularization products effectively promoted science popularization methods, and improved the quality of science and technology service platform. In order to further stimulate the public, especially teenagers interested in the science popularization activity to improve their scientific interests and literacy, since 2007, BAST and STOs selected mathematics and physics problem, developed 50 interactive science exhibits. Eighteen exhibits were exhibited in the community and school of the various districts and counties in Beijing.

During the process of the itinerant exhibition and interactive learning, community residents and teenagers grasped certain scientific principles and methods while stimulating their science and technology interests and experiencing happiness from the understanding of science. Easy to understand manuals were written, printed and issued to the participants. The manual included the scientific principle, phenomena and the production process of each interactive exhibit. Following the manuals, the participants could produce items using their leisure time and recycled materials to enhance the capacity of their hands and brains. As of 2010, close to a million people were benefited in these activities. This method of disseminating scientific knowledge is not limited by time and space, and is widespread and persistent.

3. Training of Full-time and Part-Time Staff through the BAST System

An important work of BAST Systems is training for full-time and part-time staff. In order to implement 18th National Congress of the Communist Party of China (NCCPC), “Opinions of Human Resource Development of China Association for Science and Technology (CAST)” and “Opinions of Enhancing Scientific and Technological Personnel Work of BAST”, BAST organized a series of the training classes for full-time and part-time staff to enhance their working ability and professional quality and further reinforce the workforce construction of the BAST system.

From July 2 to July 5, 2013, a total of 96 members from the municipal-level associations and foundations, districts and counties, enterprises and universities AST participated in the training. In four days, 7 expert lectures, 2 experience exchanges, 1 small group discussion, 1 workshop, 1 case study were arranged. Hui Luo, the vice minister of the Investigation and Propaganda Department of CAST, Xiaqin Liu, the minister of the Academic Exchange Department of BAST, Renhao Yan, the minister of Science Popularization Department of BAST, and Jintao Li, the minister of the Investigation and Propaganda Department of BAST give lectures respectively. Those topics were “The History and Career development of STS, Promotion of AST’s ability and functions”, “Public Science Literacy and Community Science Popularization”, and “Construction of Scientific and Technological Think Bank,” etc. Yun Qu, the Director of Positive Psychological Treatment Center of Beijing gave lectures on Emotion Control. Gang Liu, the vice Secretary-General of Beijing Association of the Integrating of Traditional and Western Medicine, Wei Du, the Chairman in Tongzhou District AST, introduced their respective experiences of continuing education. Trainees discussed how to implement innovation in their own profession. After this training, BAST also opened 6 distance learning courses for trainees. Trainees who participated in this training, completed the online 120-min course, and submitted their homework, received certificates issued by BAST.

In 2013, BAST systems organized 9 training classes and trained more than 800 individuals. Training classes were based on the theme of innovation in the work place, and were focused on three main modules of acquiring knowledge, skills and ability. The content of the training included the basic theory, practical skills and policy. The training methods comprised of expert lectures, workshop, case study and e-learning. The characteristics of training classes in BAST system are student preparation, expert on-site guidance, small group discussions and participant interaction.

In order to improve the knowledge structure and enhance the research and innovation ability of personnel in BAST system, since 2013, BAST performed an Annually Advanced Senior Training Class for full-time and part-time staff. Each training class is six months. These trainees had been in the work force a longer time, with richer experiences and theoretical research capabilities. In 2013, the research theme of BAST was Enhancement of STOs Capacity. On June 14, 2013, the advanced training class had its opening ceremony. There were four topics in the training classes, such as “Improving the Quality of Academic Exchange To Promote Science and Technology Achievements Conversion”, “Undertaking the Government Functions to Expand Association Development”, “Innovating Scientific Popularization Works of AST”,“Constructing the Internal Management and Regulation of AST”. According to the four topics,
participants were divided into four groups. Each group designed their own study schemes. Participants read related books, visited and investigated work sites, and wrote research reports accordingly. At conclusion of the training, the members exchanged and shared their training results in the large group meeting.

4. Strengthen Domestic and International Association Cooperation and Exchange

In order to timely understand the research development and progress of various disciplines, BAST system had actively strengthened the exchange and cooperation of continuing education at home and abroad. From April 12 to April 14, 2013, Professional Committee of Petroleum Geology of China Petroleum Association, Beijing Petroleum Association and the China Petroleum Exploration and Development Institute jointly hosted a international conference named “Energy Theory and Technology Innovation—The Deeper and Unconventional Oil and Gas Symposium”. Fifteen CAS and the Chinese Academy of Engineering (CAE) academicians, and more than 300 delegates from 10 different countries, including the United States, Australia, Germany, the Great Britain, Canada, Norway, New Zealand, Singapore, India and other countries attended the conference. Thirty four domestic and foreign renowned experts presented their research findings. Some of the presentations are the Theory of the Deep and Unconventional Oil and Gas, Exploration Research Progress, Resource Potential, New Technology and Current Challenges, etc. Forty-five young research experts and scholars presented posters regarding the future energy technology development and directions from different perspectives. After the conference, more than 60 domestic and overseas experts visited the Key Laboratory of Oil and Natural Gas, China National Petroleum Corporation.

On July 30, 2013, the Academic Department of Shanghai Association for Science and Technology (SAST) and the Academic Affairs Department of BAST had an association workshop at the Beijing Science and Technology Center. Both departments carried out exchanges in academic research, organizational construction, talent cultivation, scientific ethics and other major works. Xiaojin Liu of the Academic Department of BAST introduced the BAST’s experiences in the construction of this hub social organization. Pan Qi of the Academic Department of SAST introduced their experiences of the assessment of their star associations and construction of their association work platform to improve quality of service.

5. Perform Continuing Education in Continuing Education College of BAST

Beijing Continuing Education College for Science and Technology (BCECST) is BAST’s continuing education institute for training full-time and part-time staff and professional technical personnel. In 1981, BCECST was established with the approval of the Beijing municipal government [1]. In 1995, BCECST set up its training base in Daxing District. There are more than 400 academic and vocational education students enrolled in BCECST. The employment direction of students mostly is in the city’s e-commerce sector. BCECST is responsible for the daily work of several government examination offices. Up to now, BCECST trained a total of more than 500,000 individual government staff and technical personnel. The training programs effectively improved trainees’ knowledge on general theories and practices. BCECST made major contributions to senior technical professional development. Table 1 lists summary of major programs and the corresponding, sponsoring organizations provided by BCECST.

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<th>Major or Training Programs</th>
<th>Corresponding, Sponsoring Organizations</th>
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<td>Foreign Language</td>
<td>BAST Systems</td>
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<td>Computer Science</td>
<td>Beijing Economic and Trade Commission</td>
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<tr>
<td>Management Science</td>
<td>Beijing Municipal Science and Technology Bureau of Personnel</td>
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<tr>
<td>Level of Foreign Language For Study</td>
<td>Beijing Municipal Government Foreign Affairs Office</td>
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<td>Preparatory Classes Abroad</td>
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<td>Business Foreign Language Test</td>
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<td>Foreign Policy And Legal Regulations</td>
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<td>Beijing Application Software Level Examination</td>
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On April 20, 2011, as the pilot unit of Quality Self-Assessment System (QSAS) of CAST, under the guidance of CAST experts, 70% employees of BCECST made self-assessment by using QSAS of CAST. After this self-evaluation, members of BCECST found their shortcomings in management, strengthened their employee training, improved their employee incentives to discover and explore the full potential of their staff, and further improved BCECST’s infrastructure and resources to improve training quality.
In recent years, in order to meet the Outline of National Science Literacy Action Plan, BCECST carried out a series of training for key group personnel. BCECST organized training classes for staff, executive training for secretary-generals of associations or societies, new type rural and agricultural talent training, enterprise innovation training, and other programs. BCECST published a series of popular science books titled “Scientific Literacy of Leading Staff and Civil Servants”, “Community Residents Science Literacy”, and “Business Innovation and Scientific Patent Technology”. As the base of Beijing science popularization, BCECST trained science popularization staff for the Beijing Municipal Science and Technology Commission, Daxing District AST, Western District AST, and received many social praises.

To enhance the scientific quality and scientific management level of the civil servants, BAST, Beijing Municipal Bureau of Human Resources, Social Security Administration and BCECST jointly organized a conference entitled “2013 Beijing Municipal Civil Servants Science Literacy Lectures”. On the morning of May 23, 2013, the launching ceremony and the first lecture were successfully held at the China Science and Technology Museum Lecture Hall. Prof. Jiming Hao of Academician of CAE, Dean of the Institute of Environmental Science and Engineering of Tsinghua University, gave a lecture entitled “Scientific Dealing with PM2.5 in Composite Atmospheric Pollution”. More than 400 civil servants attended the launching ceremony and listened to the lecture. Subsequently, Yanqing County AST and Dongcheng District AST and other districts give scientific popularization lectures, according to their characteristics and the actual needs of personnel development. The scientific popularization lectures were leading role model for improving scientific literacy.

III. Conclusion and Reflections

Continuing education is a necessary choice for a country’s progress, a nation’s prosperity, an enterprises’ revitalization, and an individual’s development. As the Outline of the National Medium and Long Term Education Reform and Development Plan (2010-2020) [2] stated, we will “accelerate the development of continuing education. Continuing education is adult education after compulsory school education for all members of society. Continuing education is an important component of lifelong learning system.” China's continuing education is now shifting from the social fringes to the social center. It has become an important means of national technology and education rejuvenation and personnel development. In this new historical globalization period, Beijing’s continuing education system faces unprecedented opportunities and challenges.

In the comprehensive national strength competition, talent has an increasingly decisive significance. Outline of the National Medium and Long Term Talent Development Plan (2010-2020) [3] emphasizes the main initiatives of national professional talent team: “Further expand the scale of professional and technical personnel training, improve the innovative ability of the professional and technical personnel. Build a multi-faceted and multi-level continuing education system for training professional and technical talent; accelerate the implementation of knowledge renewal project for professional and technical talent.” Under the condition of China’s market economy, the development of scientific and technical associations is strongly needed for the prosperity of China's economic and social construction.

In order to implement the spirit of the 18th NCCPC report and the strategies of technology and education, talent and sustainable development, BAST’s continuing education will need to reform and adapt to the socio-economic development in Beijing, follow the pattern of educational development, learn from continuing education experiences at home and abroad, effectively take advantage of STO’s talents, continuously improve the management and quality of continuing education programs to meet the extensive and diverse needs for scientific and technological professionals. BAST plays a vital role in the field of continuing education and builds lifelong learning society in Beijing.

References

[1] Website of Beijing Association for Science and Technology http://www.bast.net.cn/