2024 FOCAC SUMMIT

Luban Workshop earns international fame

Training centers play crucial role by honing graduates' professional skills and guiding them toward successful careers

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Students from the University of Antananarivo operate machines at the Luban Workshop in the capital of Madagascar on April 26. XINHUA

Tola Tsegaye Alemu, a 34-year-old PhD student at the Tianjin University of Technology and Education and a key instructor at the Luban Workshop in Ethiopia, has garnered international recognition for his profound insights into teaching methodologies among the 33 workshops spanning Asia, Europe and Africa.

The Ethiopian teacher is currently receiving invitations to various international forums, including the upcoming Second World Vocational and Technical Education Development Conference scheduled to take place in Tianjin later this year. They are aimed at enhancing the vocational technological skills of African students.

"Africa's vocational education is still in its starting stages due to challenges such as inadequate infrastructure, varying materials and teaching resources. Consequently, certain vocations face difficulties in some countries, lacking established models to guide students toward successful careers. The Luban Workshop plays a crucial role in addressing these challenges and fostering improvement," he said.

Alemu serves as an educator at the Technical and Vocational Training Institute in Ethiopia, where a Luban Workshop was established three years ago through a collaboration between his institute and Tianjin University of Technology and Education, or TUTE.

His university stands as a leading vocational institution in Ethiopia, the headquarters of the African Union, and is recognized for its high-quality personnel training and educational programs.

Top-tier educators

The Luban Workshop has been endorsed by the AU as a premier training center, producing top-tier educators for more than 10 vocational universities across Ethiopia, Kenya, Tanzania and Uganda.

Alemu's presentation on the workshop's teaching model — the EPIP model (Engineering, Practice, Innovation, and Project) — received international acclaim during the workshop's third-anniversary celebrations in July.

His journey began with research on Lu Ban, an ancient Chinese woodcraft master and inventor, and the EPIP teaching model, developed in collaboration with Lyu Jingquan, vice-president of TUTE and one of the workshop's initiators.

Over the years, Alemu has applied this model with his students and fellow educators, culminating in successful outcomes.

After three years, he said he witnessed a positive impact of the Luban Workshop in his country, with graduates securing promising job opportunities, including positions with foreign companies operating in Ethiopia. "They operate robots with high skills they've learned from the workshop," Alemu said.

Tola Tsegaye Alemu, an instructor at the Luban Workshop in Ethiopia, talks with a friend at the Tianjin University of Technology and Education on Aug 9. YANG CHENG / CHINA DAILY

Students operate robotic arms at the Integrated Polytechnic Regional College-Musanze, a public higher learning institution in Musanze town of northern Rwanda, on April 15. JI LI / XINHUA

These graduates showcase advanced skills acquired at the workshop, enabling them to proficiently operate robots and excel in their respective fields.

To date, the Luban Workshop initiative in Africa has expanded significantly since its inception in March 2019, with 17 Luban Workshops established in 15 countries, such as Egypt, Nigeria and Cote d'Ivoire.

Offering diverse majors, including railway, machinery, electrical equipment, manufacturing, automobile, information technology, metallurgy, and e-commerce, the workshops have empowered more than 10,000 young people.

The Luban Workshop is also offering training programs in Tianjin, exemplifying its commitment to global educational collaboration.

Notably, in September 2023, 12 Moroccan students completed a short-term training program at the Luban Workshop in Morocco before embarking on a three-year undergraduate program at the Tianjin College of Commerce in China, specializing in cross-border e-commerce, according to Ma Lei, Party secretary of the college.

"The collaboration ... aligns with the vision of Moroccan King Mohammed VI to enhance youth labor skills and cultivate high-skilled labor in emerging industries," he said.

Growing demands

The students are expected to meet the growing demands of Morocco's e-commerce market, which has sustained an annual growth rate of more than 20 percent, he said.

The cultural exchanges facilitated by the Luban Workshop extend beyond technological expertise, fostering a deeper understanding of Chinese culture among participants.

Alemu, known by his Chinese name Tu Zegang, draws inspiration from the traditional Chinese term — *wu yu ze gang*, namely "without greedy ambition, people have true strength from heart".

His presentation on philosophy and figures such as Mozi, during the Warring States Period (475-221 BC) and the great inventor Lu Ban, resonated with Chinese educators and students.

Many Chinese experts hailed Alemu's presentation on Chinese culture and history.

Through initiatives like the Chinese Clothing Culture Month organized by the Tianjin College of Commerce, participants such as El Ouatiq Mohammed, who has the Chinese name Long Mude, have embraced Chinese traditions and symbols, such as the dragon, symbolizing luck, prosperity and bravery in Chinese culture.

"I understand that the Chinese hold *long* — the dragon — in high regard, as it symbolizes luck, prosperity and bravery. This is why the character *long* is incorporated into my Chinese name," he said, while previously many Westerners could not understand it and often mistook the Chinese dragon with the dragon in the West, which represents rudeness and evil in some fields.

These cultural exchanges not only enrich the educational experience but also strengthen the bonds between nations, promoting mutual understanding and appreciation.

Scan the code to see the video.

Vocational program a morale booster for African students

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Humphrey Mwambaji, a technologist at the Luban Workshop in Machakos University, 60 kilometers west of the Kenyan capital Nairobi, is a testimony to the workshop's impact on African students and the industry.

The technological prowess of Mwambaji, who graduated from the university in April 2023 with a Bachelor of Science in Telecommunication and Information Technology, impressed the management of the university which hired him in January.

In 2022-23, he participated in an information technology competition hosted by Chinese company Huawei that saw him progress to international level. The competition involved examining his theoretical knowledge and hands-on information and telecommunication skills, as well as his ability to work as a team member.

"The Luban Workshop is where my mind opened up to the networking industry. It's quite different when you are pursuing a self-led course and an instructor-led course. Here, I had an instructor who taught and directed me, the reason behind my technological prowess," he said.

"As a staff member, I'm now mentoring students to improve their ICT (information and communications technology) skills as well as motivating others to take advantage of the technical skills that are offered at the workshop."

Established in 2019, the Luban Workshop is a partnership between Machakos University and Tianjin City Vocational College. It is one of the 17 Luban Workshops established across Africa with the help of China to provide vocational training to support the continent's industrialization.

Erick Omuya, the chair of the Department of Computing and Information Technology at Machakos University, said the Luban Workshop offers training in cloud computing and information technology, as well as in other emerging technologies such as artificial intelligence.

He said the workshop has boosted the morale of the students because they can access state-of-the-art machines.

It has also increased the university's capacity, consequently reducing the student-lecturer ratio, he said.

"Most of the students have their own machines as they learn and do practical work, hence are able to gain technical skills," he said.

The lab, he said, has motivated students to come up with innovations such as the Blind Eye, a mobile phone-based application that uses AI to guide the visually challenged to navigate their environment. The university is working on a proposal to collaborate with the Kenya Society for the Blind on the commercialization of the app.

Another innovation is an application that uses AI to assess the mental status of the security officers; whether they are disturbed, distressed or stressed.

"The system uses sentiment analysis. Picking information can be verbal or text-based and then it analyses it and assigns the officer a counselor," he said, adding the student who came up with the application is currently working with the Kenya Defense Forces.

Other innovations are virtual and documented realities applications such as Metraverse Safaris, which use AI and virtual reality to view tourist sites without physically going there.

Omuya said plans are underway to create an innovation corner in the lab where the applications will be kept.

Generating collaborations

The lab has also generated collaborations between Machakos University and other universities, as well as collaborations between the university and industry players such as Huawei and Konza Technopolis, a technology hub proposed to be constructed about 60 km south of Nairobi.

With the help of the lab, Omuya said the university established a new course in 2021, called the Bachelor of Science in Cloud Computing and Information Security. The first cohort of 30 students is expected to graduate next year.

At least 1,000 students have been trained by the lab since its establishment, Omuya said.

Franklin Mutisya, an instructor at the Luban Workshop at Machakos University, said the lab has been able to bridge the gap between academia and industry by integrating the new standards with the university curriculum.

He said the lab has also benefited the local community by offering short-term courses on the Internet of Things, data communication, cloud computing and related courses. The courses are evaluated through the Huawei Academy.

As China and Africa gather for the 2024 Summit of the Forum on China-Africa Cooperation in Beijing, Omuya hopes there will be discussions around expanding collaborations on the Luban Workshop, culture, technologies, computing, and engineering, among others, to promote China-Africa higher education collaborations.

Jiang Jiang, the Chinese head of the Luban Workshop in Ethiopia, said that before the establishment of the workshop in April 2021 in the country, only theoretical knowledge was taught, but now students have the opportunity to practice at the workshop, as well as access high-end training platforms in industrial automation to boost their practical skills.

The workshop has also helped to train senior technical staff from the industry to improve their skills. They also provide short-term training for the community.

It offers courses in industrial sensor technology, industrial control, mechatronics, and industrial robotics.

"The Luban Workshop hopes to cultivate a large number of qualified industrial automation talents for Ethiopia to fill the talent gap in the industrial field, help Ethiopia's scientific and technological development, and even export talents to other countries and regions in Africa," Jiang said.

To date, Jiang said the Luban Workshop in Ethiopia had organized 37 training programs at various levels and trained 1,673 local teachers and trainees, including 1,321 undergraduates, 137 master's degree students, and 215 key African teachers.