

## Analysis on the Path of Industry-education Integration of Higher Education in Australia

Benyun Dong<sup>1,a</sup>

<sup>1</sup>Educational Administration, Jilin Business and Technology College, Changchun, Jilin, China

<sup>a</sup>dby519010641@sina.com

**Keywords:** Australia; Higher education; Industry-education integration

**Abstract:** The Characteristics of Higher Education in Australia demonstrate prospective of strategic planning, international talent cultivation and multidimensional integration of industry-education. The path of industry-education integration of higher education in Australia include dual system of higher education and vocational education, curriculum system centered on ability, a full-time part-time teacher team with close combination of industry and university, real problem in practical training and the teaching quality monitoring system of industry participation in decision-making.

### Introduction

On December 5th, 2017, The General Office of the State Council issued several opinions on deepening the integration of industry and education, which put forward specific requirements for colleges and universities to fulfill the fundamental task of cultivating talents through virtue, deepen the integration of industry and education, and comprehensively improve the quality of human resources. There are many cooperation contents and ways between universities and industries in China, but from the perspective of cooperation depth and collaborative education effect, it is still unsatisfactory. However, Australian higher education attaches great importance to the interaction between universities and the industry, and there is a deep integration and cooperation between universities and the industry. Talents cultivated by universities can quickly adapt to the industrial demand after employment.

### The success of higher education in Australia

The success of Australian higher education lies in the foresight of strategic planning, the internationality of talent cultivation and the multidimensional nature of industry-education integration.

**Forward-looking strategic planning.** A framework of academic qualifications covering higher education, vocational education and training and high school education has been constructed. In 1995, Australia established a national unified Australian Qualifications Framework (AQF). The latest AQF (revised in 2013) covers 14 state-recognized qualifications across 10 levels, linking higher education, vocational education and training, and high school education. This framework sets the knowledge competence standard for each academic qualification, and there are differences among different academic qualifications. The same academic qualification corresponds to the same knowledge competence requirements.

Australian universities focus on the future, and their goal of talent training is not only to adapt to the current occupation but also to the future occupation, to adapt to the changing occupation and environment. Guide graduates to face future changes and deal with more complex problems. Based on the research institute's prediction of the new career emerging in 2030, it can infer what abilities the new generation of students need and design them accordingly. For example, Macquarie university attaches great importance to the analysis of middle school students, analyzing the situation of potential students and preparing solutions in advance. Industry-school connection has been deep into

primary and secondary schools. Primary and secondary school students go to universities to participate in low-difficulty projects, and university experts go to primary and secondary schools to teach cutting-edge courses, and a lot of cutting-edge knowledge enters the curriculum of primary and secondary schools.

**International talent cultivation.** The diverse and inclusive Australian culture has promoted the development of international education. Victoria alone has students from more than 200 countries or regions, speaking 260 languages or dialects, and having 135 religious beliefs. Education industry has become the third largest industry in Australia. Each university considers overseas students as the focus of enrollment, and each university we visited has a vice President in charge of international affairs.

There are three main types of internationalization projects. First, student study tour (students who go to foreign countries and accept foreign cooperation projects); Second, the overseas training program for teachers (teachers from the partner institutions come to Australia for training, and teachers from our university go to the partner institutions for teaching); Third, joint scientific research BBS, the two sides of the cooperation held in turn.

**Multidimensionality of production-teaching integration.** The integration of industry and education in Australian higher education is mainly manifested in the close combination of industry (industry) and university (university). It is multi-dimensional and runs through the links such as the connection of dual learning system, teaching system design, teacher team construction, teaching link implementation and teaching quality monitoring, so as to realize the in-depth integration of multi-dimension and whole process. On the one hand, the deep integration of production and education enables the talents cultivated by universities to quickly adapt to the actual needs of the industry and realize the seamless connection between production and education. On the other hand, through industry-university cooperation, colleges and universities can communicate with the industry, and colleges and universities can lead the development of the industry by cultivating industry leaders.

### **Analysis on the path of production-teaching integration in Australian higher education**

The integration path of higher education industry and education in Australia mainly includes the double-learning system of higher education combined with vocational education, the teaching system of ability-centered design, and the professional and part-time teachers closely combined with industry and education.

**The double-learning system through education combining higher education and vocational education.** Australia has established a national unified academic qualification framework AQF, which covers 14 state-recognized academic qualifications in 10 levels, laying a foundation for the combination of higher education and vocational education. Four of the eight universities in Victoria, Australia, have adopted the dual system of closely combining higher education and vocational education, such as Swinburne University, Deakin University and Latrobe University. Swinburne has the first factory college supported by the aerospace industry, with two campuses in the suburbs, where faculty and students are close to co-op enterprises or industries to facilitate the integration of industry and learning.

**Design of competency-based teaching system.** Australian universities highlight the design of competency-based curriculum system, focus on the cultivation of students' hands-on ability, and integrate similar courses. The syllabus highlights the requirements of students' skills and career development. Each student must have a certain period of internship experience in a company. Students do not come to school for a degree or a certificate, but for a certain ability. After graduation, students may go back to school and continue to study a certain course for the purpose of acquiring a certain ability according to their own work or industry needs. For example, the innovation mode of the university of Melbourne is mainly reflected in improving the basic course teaching and getting through the professional basic course of bachelor's degree. Bachelor's degree programs emphasize depth, accounting for 75% of the total program; More attention is paid to the breadth of cross-disciplinary courses, accounting for 25% of the total curriculum. The university of Melbourne requires teachers to change their teaching methods and train students' critical and innovative thinking.

Most of the teachers of Melbourne institute of technology come from the industry and have rich knowledge of the industry. They are capable of translating the content of Training package (government standard) into corresponding courses and carrying out corresponding design and reform. Students go directly into the enterprise during their study.

**A team of full-time and part-time teachers closely combined with production and study.**

Most of the teachers in Australian universities are from the industry and have rich industry knowledge. They are capable of translating the content of Training package (government standard) into corresponding courses and carrying out corresponding design and reform. Compared with other countries, higher request to teacher's, Australian universities teachers to students is the core knowledge rather than specific content analysis framework, teachers need to have the ability to design the course, teachers must understand the actual problem of enterprise and community, professional ability, good communication ability and the surrounding businesses and community. The improvement of teachers' scientific research and teaching ability has become a system. Teachers update teaching content through scientific research to adapt to the latest teaching model. Teachers must obtain 2 certificates, Training level 4 certificate and Assessment level 4 certificate.

In Australian universities, it is very common for course leaders to invite professionals to participate in the teaching of some course contents, and the proportion of part-time teachers participating in teaching is relatively high. As a result, students can gain a direct understanding of practical practices and real problems in the industry.

**Practical teaching links with real problems and joint guidance from schools and enterprises.**

The practical links of Deakin University and the university of Sydney include the design of two courses, which are offered in two semesters with a total of 6-7 months. From the beginning of project design, including project management, project development, results report, results display and other links. Graduation design to the group as a unit, each group of 5-6 people. The title of graduation design comes from the real needs of the industry, including the new problems encountered in the development of enterprises. After the industrial demand is put forward, the college will classify and sort it into several small projects as graduation design topics for students, and assign different topics according to their abilities and levels. Enterprise teachers and university teachers together to guide students. In the internship practice link not only to send out the students, but also to ensure that the content of the internship and professional related, true.

PACE of Macquarie university project Professional and Community Engagement, students need to interview, students enter the school related website search for internship program of interest, determine the project after telling the teacher, the teacher to arrange the interview, interview through the need in industry after 100 hours of practice, students need to reflect on practice and knowledge and the relationship of the course, to conclude a contract for the internship, the trainee competent appraised according to the practice and performance of our students. Each student must have a 6-12 weeks paid integrity internship in the company. The school provides a social platform through which students and employers can communicate directly. Companies can choose outstanding graduates to enter.

**Teaching quality monitoring system for industry participation in decision-making.** Based on the qualifications framework, Australia has established a complete education quality assurance and supervision system with independent quality assurance and supervision institutions at the federal and state (territory) levels. In the field of higher education, the higher education quality and standards agency (TEQSA) mainly realizes the quality supervision of higher education through curriculum certification, registration of higher education institutions, risk supervision of higher education institutions, consultation, information release, training and other work and activities. In the field of vocational education and training, the Australian skills quality authority and the Australian vocational education quality framework jointly constitute a national unified quality assurance system for vocational education training and assessment to monitor the quality of the national registered training institutions.

In addition to the minimum standards and requirements of TEQSA as a teaching quality supervision standard system for universities, there are also teaching quality supervision systems

within universities, such as school council, academic (promotion) committee, industry committee or curriculum committee. In Australian universities, the council, academic (promotion) committee, industry committee or curriculum committee are relatively independent, independent of government intervention and decision-making. Swinburne university's industry committee is responsible for the development of core professional curriculum standards, which are implemented by the university and meet twice a year. The curriculum advisory committee consists of about 10 members and is made up mainly of business people, except for department heads and other university professors. The curriculum committee is a decision-making body, not an advisory body. These committees have the power to make decisions on the curriculum system, the important issues of the university and, as required by the Australian higher education quality and standards agency (TEQSA), produce reports confirming whether the curriculum system and talent development are up to standard.

### **The student-centered concept runs through each link of talent training**

The open learning space and teaching facilities reflect the student-centered concept, which runs through all aspects of talent training. Various intelligent learning platforms also provide students with more personalized services.

**Open learning space and teaching facilities.** Universities such as the university of Melbourne and the university of technology Sydney attach great importance to the construction of functional teaching facilities to create a future-oriented learning environment. Open learning space is everywhere, there are a variety of autonomous learning environment. The school has built a lot of specialized classrooms for lectures and tutorials. Each study group can use computer monitor and projector to display and report the results. Traditional lectures and tutorials are combined to increase the interaction between teachers and students.

Latrobe University library is zoned and each floor functions clearly. Talk on the first floor, students can ask questions, discuss, consult and so on. The second floor is quiet, the third floor is quiet. There are not many paper books and more electronic books in the library, which provide students with a self-learning environment. Students can print by themselves, and any terminal device can print, which is very convenient.

The building focuses on functional design so that students can learn about the atmosphere of future employment while attending classes. The multifunctional learning hall can be used for group study and discussion. The corridor design reflects the continuous learning experience, from the formal learning environment to the informal learning environment, with the addition of learning tables and chairs and other facilities. Building box classrooms, due to group work and group discussion, to create collective learning group learning experience. Chairs and tables can also be turned upside down. Discussion rooms are not open to teachers, only students can use them. Curriculum reform requires that all teaching content must face the future and meet the needs of the future. The study environment simulates the work environment, the examination type content is true, is close to the future work environment, is not the examination knowledge point, the examination ability.

**Implement the student-centered service concept.** It has a student service department, which provides international students with help from language to law. These include international students, speech and learning skills centers, mutual learning programs, special needs and financial assistance programs, counseling services, health services, religious rooms, peer networks, international student events, and more. There is a student career planning guidance center, students can make an appointment to queue, the school provides resume writing, employment guidance training and other services.

The lab manager arranges and prepares the materials according to the syllabus. In Melbourne university's school of arts and humanities real practical sample laboratory, can open archaeology, history, language, humanities, art and so on many courses, these courses in the laboratory class, the teacher put sample request in advance request, is to prepare ahead of time, or even part of the exhibits are borrowed from the state museum to display.

**Intelligent learning platform centering on students' needs.** Deakin's smart approach provides students with serialized learning tools and platforms. First, Deakin Genie is a personalized software

platform for students to self-manage their learning and life and realize voice dialogue. Provide study reference materials according to students' majors and courses, establish study memos, play class video, remind students of which classes they should take, which books they should bring, when they should hand in their homework, whether they need to be reminded and how to choose. Second, Deakin Spark is an incubator platform that encourages student entrepreneurship. Third, Deakin Cloud is an online learning platform for 15,000 people with powerful functions. Regular course resources, courseware, teacher's lecture video, students can check at any time. It can realize functions such as online examination, student submission of homework, and online dialogue between students and teachers. Teachers can check the students' learning progress and remind them of their progress. Fourth, Deakin Future Learn MOOCs platform.

### **Various Alliances Play an Important Role in Personnel Training**

There are many alliance institutions in Australia, such as eight alliances, Australian university of science and technology alliance, innovative university alliance, Australian remote areas alliance, Australian university alliance, Australian higher education association and so on. The university union of Australia focuses on educational equity, educational competitiveness and policy research. The decisions of the alliance affect some policies on education by writing research reports, publishing white papers, discussing policies with professional advisory teams, and seeking opportunities to have dialogues with government ministers. The advisory services of the alliance are put into practice and effective dialogues can be conducted with people who are really responsible. The alliance's cooperative activities for members are mainly reflected in its support for members, and the sub-organizations under the alliance are engaged in the promotion of relevant specific matters. As the international union of docking department, research other countries government policy, policy development, reception delegation, docking with other international organizations (CEAIE China education international exchange association, the Canadian alliance, the British union, the German league DAAD), understand the situation of other countries, thus providing communication platform and policy Suggestions for the member.

ATEM Australian higher education association, whose members include unit members, more individual members, in addition to the university, institute of technology, private education institutions and work in a line of teaching management personnel, its members is wider, ATEM focused on training programs, in each state and regions have association branch, branch association of must take three times a year, chairman of the board meeting.

These alliances provide strong support for higher education in Australia by providing members with vocational training, communication platforms and other services, and influencing government policies through dialogue with relevant personnel in government departments.

### **Conclusion**

Australian higher education emphasizes on the student-centered concept which runs through all links of talent training. Various alliances play an important role in talent training. The industry and the universities integrate in Australian higher education. In Australia, the whole process of multi-dimensional integration measures and education model provides an important reference value for Chinese higher education.

### **Acknowledgements**

This article is the initial results of the 13th Five-years Plan of education science the key research topics of the Jilin province "Research on local college GEC cooperation talents mode transformation" (No. ZD17153), the 13th Five-years Plan of education science the key research topics of the Jilin province "Research on the curriculum system reconstruction of the local transformation of universities" (No.ZD17157), Jilin province higher education society general subject "Analysis on the

mode of the integration and running mechanism between college and enterprises in local colleges( No. JGJX2018D102) .

## **References**

[1] Luescher-mamashela, T. M. (2011). Student involvement in university decision-making: Good reasons, a new lens. *University of the Western Cape*. Retrieved on 20 July from <http://repository.uwc.ac.za/xmlui/bitstream/handle/10566/220/Luescher-mamashelaStudentinv-olvement2011.pdf?sequence=3>.