ISBN: 978-981-14-2064-1

The Comparison of the Development Process of Campus Planning in the Initial Establishment of Private Universities of Science and Technology in Taiwan

Chuan-JenSun[1, 2, a], Shang-Chia Chiou[1, b]

[1] Graduate School of Design, Doctoral Program, National Yunlin University of Science and Technology
[2] Department of Visual Communication Design, TransWorld University
123 University Road, Section 3
Douliou, Yunlin 64002, Taiwan, R.O.C.
Tel.: +886 912-15862; Fax: +886-5-5370989; E-mail: manoa.tw@gmail.com [a]; chiousc@yuntech.edu.tw [b]

Abstract

Ever since the year of 1990 when the Taiwan government started to promote new establishment of institute of technology and the institution status change, name change and upgrading policy of various types of schools, the number of technological universities and colleges has dramatically increased. The purpose of this study is to probe into the course of campus planning development in the early stages of foundation of private university of science and technology in Taiwan. It is hoped that the research be conducted aiming at the development context of school formulation from the standpoint of technical and vocational education's historical development. This study adopts qualitative observation, documentary research and in-depth interview to try to understand the research topic from multiple aspects through field observation and interactive interview. Lastly, the study applies "comparative analysis approach" for reflecting on the development characteristics and issues of Taiwan's private vocational school in the light of campus developing process and implementation modality of private technical university before proposing the relevant suggestions at the end of the paper.

Keywords: Campus Planning, private university of technology, private technical college Technological and Vocational Education, Universities of Science and Technology

Introduction

1-1 Study Background

As one of the important academic systems in Taiwan's higher education, vocational education is responsible for the nurturing mission of senior professional and technical personnel. Ever since the year of 1990 when the government started to promote new establishment of institute of technology and the institution status change, name change and upgrading policy of various types of schools, the number of higher university of technology has dramatically increased. However, in terms of a campus that affects essentially and greatly students' environmental cultivation learning, a technical college should in fact take the conformation of technical and vocational spirit and educational orientation into consideration and shape the school style and applicability of the technical university that possesses vocational education content based on school comprehensive planning and development framework of organic growth and sustainable operation. Therefore, except for the majority of junior colleges which have transformed upon following the "restructuring model", those of a few public and private technical college that are founded by adopting "newly-established mode" are with significance and indicative meaning towards the approach of constructing a vocational campus that conforms to the "university" level at the time by comparison . If we try to look at the number of technical college again, it is evident that the number of private institutes is larger than the one of public institutes, not to mention the fact that the percentage of students from private schools accounts for more than 80%. The figure explains perfectly that the quality of school operation conducted by private university of technology will directly determine the quality of work force of our country in the future. Consequently, with regard to an university campus, being both the representation of education and special carrier at the same time, the exploration of the concrete practice of school comprehensive planning and spatial organization performed by newly-established private technical colleges will help to reexamine further the developmental context and blind spots of Taiwan's higher technical and vocational education. This is exactly the major motive of this study.

1-2 Research Purpose and Method

Based on the above-mentioned background and motive, the purpose of this study is to probe into the course of campus planning development in the early stages of foundation of private university of science and technology in Taiwan by taking Chaoyang Institute of Technology (now: Chaoyang University of Technology, or CYUT for short) and Shu-Te Institute of Technology (now: Shu-Te University, or STU for short) as research subjects. It is hoped that the research be conducted aiming at the development context of school formulation from the standpoint of technical and vocational education's historical development. This study adopts qualitative observation, documentary research and in-depth interview to try to understand the research topic from multiple aspects through field observation and interactive interview. Lastly, the study applies "comparative analysis approach" for reflecting on the development characteristics and issues of Taiwan's private vocational school in the light of campus developing process and implementation modality of private technical university before proposing the relevant suggestions at the end of the paper.

Literature Review

2-1 Development of the Technical and Vocational

Education in Taiwan and Private Education

In terms of the content of technical and vocational education, it mainly revolves around fostering all kinds of employment skills that the students are required to have at the workplace by combining the concept of Technological Education with Vocational Education. That is to allow students to "acquire knowledge, techniques and ability for job performance" [1] and to cultivate a large number of high-quality technical talents of various kinds and at diverse levels for the country by keeping up closely with the economic development strategies of our nations during different periods. This not only becomes the fundamental backbone of each industry but also constitutes the potential competitive advantages of Taiwan. Moreover, along with the changing times of economic environment and educational development, the developmental priority of technical and vocational education has varied radically. Whereas the concern is about the development of before 1990, the government starts to deregulate, ease restrictions on higher education and shift the focus to the development of institutes and universities of technology that put emphasis on higher technical and vocational education after 1990. The whys and wherefores of the conversion is to respond to the appeal of university expansion sparked off by education reform when our government is confronted by the adjustment of industrial structure and the wave of democratization aroused by the termination of martial law. Meanwhile, in order to reduce the heavy education operating cost and financial burdens that come along with the institution of national universities (for example the investment of school buildings, faculty and resources of various types), the government vigorously encourages private education for boosting the investment of folk educational resources thereupon so that the huge expenditures in education can be shared. In order that the imperious demands of higher technical and vocational education's amplification of the society can be satisfied therein, the tactic of relying on the assistance offered by the establishment of private schools has inevitably become a necessary attempt that needs being put into practice. Since the most efficient way would be to select a great number of "exemplary" private junior colleges and transform them into institute of technology, the manifest development pattern of private schools' exceeding public schools in number and technical schools' being more than universities has become the development model of higher education in Taiwan.

2-2 *"Reorganization" of Junior Colleges VS. "New Establishment" of Private Schools*

The 74 high technical and vocational universities are set up in succession between 1991 and 2014 by following either one of the two kinds of establishment modes: one is the newly instituted schools, and the other is the "reorganization" of the existing junior colleges. In view of government's encouraging the original private "junior college" to transform gradually into "institute of technology" and head toward the educational policy of name change into "university of technology", it is not difficult to find that the 74 technical and vocational schools mentioned above are mostly founded by following the "restructuring model". Only five public and private universities of science and technology (National Yunlin University of Science and Technology, National Kaohsiung First University of Science and Technology, University of Technology, Shu-Te University, and Yu Da University of Science and Technology) among are newly established. To compare the discrepancy between the two modes, it is obvious that the problems encountered during the preparation process of the newly instituted technical colleges are easier to work on due to the lack of former burden brought by the junior college, allowing the development of a more comprehensive scheme upon seeing the big picture.

2-3 *Campus Planning and Matters of University of Technology*

From the perspective of a new-founded university, as the thinking and consideration of "campus overall planning" is integrated during preparation, the "newly-constructed campus" is able to display a structure of consistency and integrity and define precise campus style with an environmental image which delivers clearly the vision and idea of education at the beginning of the establishment. By contrast, the private schools set up by following the "restructuring path" for junior college can only adapt to the actual situation of the original small school ground and carry out building extension or modification within the existing pattern because of having been unable to foresee the needs of development during the institution of junior college.

Comparative Analysis and Results

Through comparative and inductive method, we can discover that despite the idiographic approach of two dissimilar school cases, significant similarities and differences still occur in respect of the actual operation and overall planning during the process of foundation. The findings are as follows:

3-1 Case Overview

3-1-1 Chaoyang Institute of Technology

The Chaoyang Institute of Technology (Figure1), established in 1994, is the first privately-run Technical College in Taiwan that has not been reorganized through a specialized

Figure 1. CYUT campus

college but new-established. It is also the first private university to be renamed the University of Technology with four other state-owned technical colleges. It is not only representative in the private university of technology, but also the successful establishment of the school has become the first example of a new school model adopted by private vocational colleges. The original campus is expected to reach 6,000-8,000 students and develop into a medium-sized comprehensive technical college. Thus, the campus planning of this case is based on this design.

ISBN: 978-981-14-2064-1

3-1-2 Shu-Te Institute of Technology

Established and begun its enrollment in 1997, Shu-Te Institute of Technology (Figure 2) is the first new-founded private technical institute not converted from a junior college in southern Taiwan and the second private technical college that is set up by adopting "newly-established mode". It located in Yanchao District, Kaohsiung City covering a measure area of 16.64 hectares. The purpose of its institution is to follow the idea of all-around education. More precisely, the vision is to increase learning capability and employment of technical personnel and to develop further into a comprehensive university with the goal of articulating and continuing technical and vocational education through diversified, integrated business model reposed on southern Taiwan. The objective is to turn into a medium-sized university campus in middle and long term and to reach the estimated scale of 6,000 students in the long run in accord with the school development drawn up at preparation stage, based on which the overall planning of the campus for this case is followed out.

Figure 2. STU campus

3-2. Comparative Analysis and Results

3-2-1. Aspect of School Orientation

According to research findings, it is obvious that instead of having a substantial or modal mission and orientation like public universities, private universities tend to be more "educational market-oriented". Consequently, the intention of school founders or the board of directors and the trend of educational market are prone to be the principal driving factors. Moreover, we also discover, from research interview, that the dominant influence of the director of provisional office varies because of being subject to the inclinations of the supervisors (founders or the board of directors). If the director can acquire full authorization, the execution attitude of campus comprehensive development and planning will be able to reflect the educational idea.

3-2-2. School Size and Middle and Long Range School Development

We can learn from literature and interview data that for most of the junior colleges or new investors of educational business, they are inclined to adopt a "wait-and-see" attitude as higher technical and vocational education pattern is still a brand-new concept or educational policy with many strict application requirements and procedures to grope for at that time. The development objective for school size and middle and long-term school development is to achieve a scale of 6000 to 8000 students in an attempt to become a medium-sized comprehensive institute of technology. However, according to the research results, not only has the number of new-founded departments, teachers and students been increasing year by year, the size of the school has been enlarged rapidly, which reaches up to 12000 to 15000 students, within 10 years after the establishment of the two cases. It is thus easy to recognize the myth of private schools' pursuing proactively school growth, leading bit by bit to the emergence of the disequilibrium between "quality" and "quantity" of high technical and vocational education.

3-2-3. Land Use District

As most of the new-founded private universities repose on the hillsides in suburbs conforming to or exceeding the standards of basic threshold enacted by the Ministry of Education, the practical usable area of the school grounds, often limited by grade, are finite and short of possibility of expansion in spite of covering an area of 15 to 30 hectares. What is more, since private schools tend to run its business in line with the pragmatic enterprise management spirit that they devote particular care to fulfill the economic benefits of everything and to attain the maximum economic efficiency concerning the aspect of land utilization, the development strength of the land is prone to "high density development type". In virtue of the limitation of reserved space for development, the space of the campus soon become saturated that schools are forced to search for other grounds for augmentation during the rapid growth of school affairs.

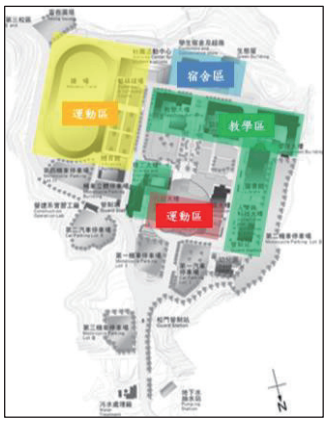

Figure 3. CYUT

Figure 4. STU

3-2-4. Site plan

For the planning structure of spatial model, the benchmark of developmental axis is set up complying with the slope terrain of the campus, which combines functional spaces of the same attribute into various spatial clusters that are concentrated and configured on both sides of the linear reference road. Two types of spatial structures, the "linear banding mode" and "linear cluster mode", conclude a part of the layout. Besides, due to relatively cramped usable areas on the hillside, the enhancement of land use intensity is the strategy assumed by many private schools. Hence, in principle of claiming larger floor area while reducing floor space of the school buildings, both universities are inclined to discipline composite and high-level volume design. By means of the management and design of function and facility intensification of the internal space, the effectiveness of land resources use on campus is

ISBN: 978-981-14-2064-1

improved. Meanwhile, thanks to the effective management of teaching facilities, the sharing of teaching resources and lateral exchange among diverse fields are empowered.

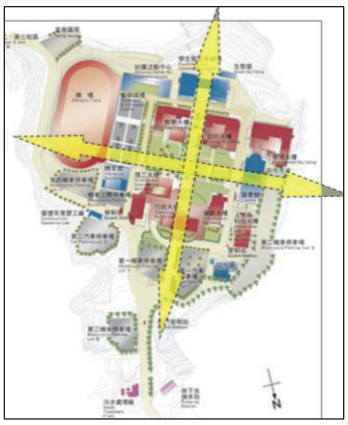

Figure 5. CYUT

Figure 6. STU

3-2-5. Campus Road System

In principle, the formulation applies approaches that are able to maintain a user-friendly environment on campus and live up to the traffic pattern of "mainly rely on people supplemented by cars" as much as possible in accordance with the planning idea and conception of "taking human beings as the essential". Meanwhile, the school chooses road network type suitable to local conditions by cooperating with land use district and building layout and adopts a road system with construction schemes of distinct levels.

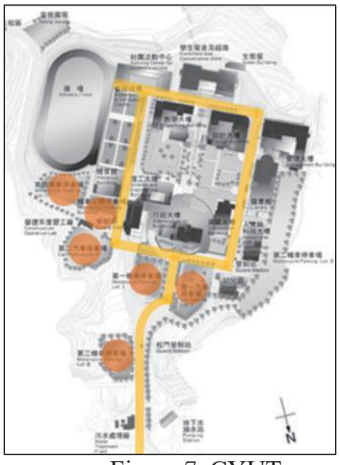

Figure 7. CYUT

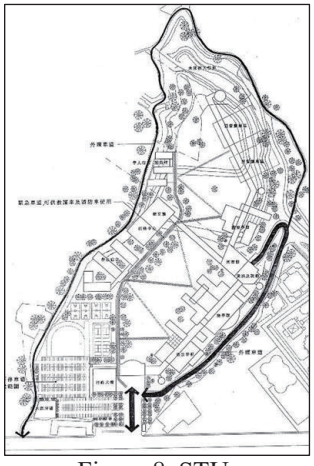

Figure 8. STU

The purpose is to make sure that a "traffic calming zone" that will never be disturbed by the running vehicles is marked off in the central area of the campus in order to build up a "walking campus" exclusively for pedestrians. In the case of school parking system, both cases act according to the principle of "the combination of centralization and decentralization", and carry out apparent planning strategy of "campus peripheral development" in practice.

3-2-6. Shaping of Campus Landscape and Open Space

Concentrated and high-level design are being adopted by both schools for spatial layout under the situation given the limitation of practical usable area of school grounds and the reduction in floor space of the school buildings owing to cramped coverage and hillside terrain in the aspect of spatial scale according to case comparison. As to the shaping of open space, restricted by the lay of the land, the campuses of both schools become isolated, accompanied inevitably by the lack of spatial liaison and fusion with town and urban areas. Furthermore, the schools fail to put up sports venue and facilities, which can most likely be open to and shared with city dwellers, at the site with strong communications with the outside world. Instead, the allocation takes place at the end of the campus, procuring weak accessibility and convenience that the authentic effectiveness of campus space's openness to the outside world is confined.

Figure 9. CYUT

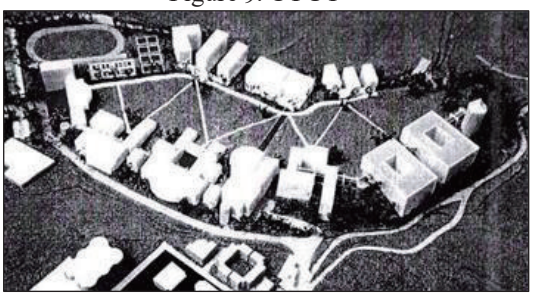

Figure 10. CYUT

Conclusion

For a university, the primary stage of school establishment is a very special phase of campus development. The main purpose is to make firm the framework of university campus with the capability of continuous growth, laying the groundwork for favorable development of the university. Though the results of this study could merely indicate the performing progress and manifestation presented by the planning development of Taiwan's private technical and vocational institutes in the pioneering days of foundation, the skeleton and outline of research outcomes can still serve as the basis for the comprehensive study on the campus of university of technology in the future..

References

[1] Moran, L., & Rumle, G. (2004). Vocational education and training. In Moran, L., & Rumble, G. (Eds), *Vocational education and training through open and distance learning* (pp. 1-14). NY: Routledge.