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# What are universities pursuing? A review of the Quacquarelli Symonds world university rankings of Taiwanese universities (2021–2023)

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This study evaluated world university rankings in Taiwan. Media reports and the literature on world university rankings have focused on rankings, particularly in Taiwan. This study conducted a document analysis of the Quacquarelli Symonds (QS) World University Rankings in Taiwan's universities from 2021 to 2023, and explored two cases: National Taiwan University and Taipei Medical University, both of which are listed in the QS World University Rankings for sustainable development. First, the researchers analyzed the related topics of the world university rankings. Second, the researchers explored the position of Taiwan's universities in relation to the top 500 universities in the QS World University Rankings from 2021 to 2023. Third, two case universities pursuing QS World University Rankings are discussed. Finally, this study found that both universities are improving their teaching, research, and internationalization based on the indicators of the QS World University Rankings and the development of school affairs. The universities employ international faculty, cooperate internationally on projects, developing cross-disciplinary research, strengthening innovation, and increasing internationalization and cooperation with research institutions, and attract foreign students for sustainable development. The findings may serve as a reference for improving QS World University Rankings and promote the sustainable development of Taiwan's higher education system, and understand global competition among universities.

## KEYWORDS

education, higher education, internationalization, National Taiwan University, QS world university rankings, sustainable development, Taipei Medical University

## 1. Introduction

### 1.1. Global competition of universities for sustainable development

The Sustainable Development Goals (SDGs) are a widely accepted framework for promoting sustainable development. SDG4 goal 4.7 pursues the “sustainability” of education to promote sustainable development for country (Sánchez-Carracedo et al., 2021). Higher education is crucial to sustainable development for country. Hence, in the early 1990s, university rankings became popular metrics among countries worldwide, with attention from not only the public

but also academics. In 1983, after the U.S. News and World Report begun publishing the annual Best American Colleges Ranking, many countries followed suit and prepared university rankings (Hou, 2008a; Sibal, 2011; Huang and Wang, 2018; Wang and Zhou, 2023).

In the 21st century, the world has become more globalized. Globalization has decreased distinctions between countries and has increased interdependency among countries. Subsequently, countries must compete for international talent, which has considerably affected higher education globally. Higher education institutions have also become more concerned with global evaluation and ranking systems for sustainable development. Various university rankings are published annually, and the rankings affect competition among universities (Huang, 2004, 2011a; Sibal, 2011).

Due to the formulation of international university rankings, many universities aim to have high international rankings in addition to high domestic academic reputation and rankings. Universities use excellent university rankings to attract international students. Importantly, high rankings enable universities to gain global recognition through their academics, draw more financial resources, and invite famous international scholars to teach, and these rankings enhance the reputation of the university at home or abroad for sustainable development. Due to globalization, Taiwan's universities have also changed, and some universities are concerned about their international rankings for sustainable development to face global competition of universities (Hou, 2008a; Chou, 2010; Balatsky and Ekimova, 2020).

## 1.2. Concerns and debates in the higher education community

Global University Rankings (GURs) should be concerned by universities in Taiwan to match current international trends (Ministry of Education, 2022; Muñoz-Suárez et al., 2020). Rankings are a useful tool that can improve the transparency of universities, and they provide information on the evaluation of university programs, research, and teaching. University rankings continue to be debated in the higher education community (Wang, 2002).

With the internationalization of higher education, transnational education, cross-border education, and student mobility have become the key terms in higher education. In addition to competing for world university rankings, universities attempt to recruit high-quality international students. University rankings have become the basis for measuring the quality of universities. In addition to the enthusiasm for rankings in Asia, various programs have been implemented by the government for improving university rankings. Since 2006, the Taiwanese Ministry of Education has successively promoted the Toward Top Universities Program, which stipulates that "at least one university will be ranked among the world's top 100 within 10 years," and resources are concentrated in potential top universities. Thus, university rankings are pursued by top universities (Lin and Chen, 2015).

## 1.3. Top universities are expected to have high world university rankings in Taiwan

In Taiwan, top universities are expected to have high world university rankings, and they consequently receive considerable financial support

for sustainable development. Most international ranking systems are created by European and American institutions. If an excellent university is not in the ranking system, the evaluation and competitiveness of the university are negatively affected. Thus, universities are pressured to be in the ranking system and risk being marginalized if not included. Various university rankings are published every year in Taiwan, such as the Quacquarelli Symonds (QS) World University Rankings, Shanghai Jiaotong University World University Rankings, and Times Higher Education World University Rankings (Su and Liang, 2016; National Taipei University of Science and Technology, 2021).

In conclusion, global competition among universities has become fiercer. Various university rankings are published annually and affect the competitiveness of universities in Taiwan. Furthermore, the use of university rankings as the basis for measuring the quality of universities continues to be a cause of concern and debate in academia. Therefore, some universities in Taiwan are concerned about their rankings.

The research objectives were as follows: (1) conduct a document analysis of the QS World University Rankings in Taiwan and explore related issues that have emerged in Taiwan's pursuit of higher world university rankings, (2) analyze the QS World University Rankings of two universities, the National Taiwan University and Taipei Medical University, and provide a reference for universities to improve their QS World University Rankings.

## 2. Research method

### 2.1. Documentary analysis

Documentary analysis is research which involves documents as the data (Aimee Grant, 2022). Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give meaning on a topic (Bowen, 2009). Fischer (2006) defined document analysis as a systematic procedure for reviewing or evaluating documents, both printed and electronic material. The researchers used the documentary analysis method to analyze studies related to the QS World University Rankings in Taiwan, and used deductive and inductive logic to explore the issues and meaning discussed therein.

### 2.2. Case discussion

Two case universities pursuing QS World University Rankings are discussed, such as the National Taiwan University and Taipei Medical University. According to the QS World University Rankings from 2021 to 2023, National Taiwan University was the highest ranked public university in Taiwan, and Taipei Medical University was the highest ranked private university. Therefore, these two cases are discussed further in this study.

## 3. Relevant topics

### 3.1. University rankings as a university strategy in Taiwan

It is beyond doubt that rankings have become a significant part of the tertiary education landscape, both globally and locally (World

[Economic Forum, 2015](#)). Moreover, the QS World University Rankings can lead to a transformation of Taiwan's higher education system toward greater sustainability. Due to declining birth rates, many universities in Taiwan face potential closure. Therefore, raising university rankings has become a strategy for universities to compete and survive for sustainable development. University rankings have always been a key factor for students and parents when selecting a university; however, the reliability of university rankings and their effect on the university are often debated. Therefore, why do domestic and foreign universities value and pursue university rankings? This study provides some insights into Taiwanese universities that pursue world university rankings ([Wang, 2015](#); [Huang, 2022](#)).

### 3.2. University rankings

The emergence of the modern university is a phenomenon of the nineteenth century: its development as the principal knowledge-producing institution ([Peters, 2010](#)). However, rankings are a relatively recent phenomenon in university governance and politics ([Benner, 2020](#)). University rankings are now a world-wide phenomenon. Used ostensibly as a means of achieving increased transparency, and covertly as a way of introducing a competitive market into higher education, the various ranking exercises have had an immense impact on the higher education sector as a whole, on individual institutions, and on professional career paths. They have been instrumental in defining 'the world class university' and establishing the benchmarks for academic preferment ([Nixon, 2020](#)).

As the number of higher education institutions increase, providing a high-quality learning environment and high-quality resources for students has become essential. Due to the commercialization of higher education, international university rankings represent the competitiveness among universities. University ranking methods are used to evaluate the performance, strengths, and weaknesses of universities. The introduction of university rankings in Taiwan coincided with the adoption of rankings for universities worldwide. University rankings refer to a list of ranked higher education institutions in a specific region or country on the basis of the same set of indicators, and these rankings provide a comparison of institutions based on pros and cons. University rankings can be interinstitutional rankings, and two systems are used for subagency rankings. University activities are ranked from superior to inferior based on the magnitude of the relevant characteristics of the university ([Usher and Savino, 2007](#); [Liao, 2011](#)).

[Usher and Savino \(2007\)](#) described that university rankings refer to a ranked list of educational institutions in a specific region or country on the basis of the same organizational evaluation index. Moreover, university activities are ranked on the basis of pros and cons, which can be further divided into interinstitutional rankings (i.e., institutional ranking systems and subinstitutional ranking systems). [Salmi and Saroyan \(2007\)](#) highlighted that university rankings are implemented on the basis of a broad set of indicators for measuring school operations, internal functional efficiency, academic output, and other variables. [Wu and Lin \(2010\)](#) reported that university rankings represent quantitative evaluations of various research articles, lectures, teachers, services, facilities, achievement performance, and the academic reputation of universities.

### 3.3. World university rankings

Globalization trends are now fundamental for education reform in many nations, and "World class" has become a central goal in university policy worldwide. The concept in turn is dependent on the emergence of measurements and yardsticks of "world class" and how it might be attained. University rankings form a key part in the construction of "world class" as a measurable and purportedly attainable goal for universities—and the construction of an organizational identity as "ranked" and "measured" ([Benner, 2020](#); [Hung and Yen, 2022](#)).

Today, policymakers and higher education leaders identify and define their goals and strategies for obtaining favorable global university rankings ([Hazelkorn, 2013](#)). World university rankings are an extension of university rankings, but no clear and single definition of world university rankings exists. The World University Ranking Department is an international body for university rankings. After the preliminary screening of universities, the scores are calculated using various evaluation indicators, and university operations, quality, and academic research results are evaluated mainly using the results ([Liao, 2011](#)).

### 3.4. Advantages of QS world university rankings

Human is by nature a learning individual. School education must meet the individual learning needs ([Ye and Shih, 2020, 2021](#)). Autonomy and responsibility are the very essential characteristics of the learners. We have seen and been experiencing that some learners are somehow forced to be passive recipients of objective knowledge or information ([Rijal, 2021](#)). International universities provide students with a more global perspective and an international teaching and learning environment, which promote autonomy and responsibility of the learners.

The world university rankings can promote the internationalization of universities and provide an array of benefits for sustainable development. Highly international universities can establish a strong international brand and more easily attract faculty and students from across the world. Moreover, international universities provide students with a more global perspective and an international teaching and learning environment, which fosters the exchange of best university practices. Consequently, students studying at highly international universities develop international sensibilities and global awareness ([Quacquarelli Symonds, 2022a](#)).

### 3.5. Disputes of QS world university rankings

University rankings provide a measure of the ability of a university to attract talent. Scores are calculated using common objective indicators, ranked scores and quantified data are calculated, and results are simplified for quick evaluations. University rankings present the objective positions of universities through quantified data, allowing readers to easily understand the gaps between rankings. Moreover, university rankings disclose information to the public, and the government, students, and parents can quickly evaluate the performance of a university. However, because rankings simplify complex concepts, details may be omitted in rankings ([Huang, 2011a,b](#)).

Governments should focus on their country's higher education. QS World University Rankings can be used by governments to analyze the overall progress of domestic universities and to identify areas of improvement. However, the data should not be used as a tool for comparing individual institutions with other institutions, which may negatively affect national higher education systems and cause resources to be concentrated in a few universities. A higher university ranking may affect other universities and weaken higher education across the country (Wang, 2015).

Finally, the QS World University Rankings are peer reviewed and weighted by 50%. Peer review data are collected through a global online questionnaire. However, the representativeness and objectivity of the survey have been debated. The measurement benchmarks often overestimate older and more internationally visible universities, and the rankings tend to favor Anglo-American universities. Finally, academic freedom is measured using an evaluation index, which negatively affects universities in some countries (Huang, 2011a,b; Holz, 2021).

## 4. Quacquarelli symonds world university rankings

Rankings are based on a fundamental theoretical and methodological challenge, namely, to pare down a very complex set of activities into a small number of indicators, which are in turn conjoined (Benner, 2020). In 2004, Quacquarelli Symonds (QS) cooperated with the Times Higher Education (THE) to qualitatively and quantitatively evaluate the academic performance of universities worldwide. Since 2010, THE has cooperated with Thomson Reuters and later jointly published the ranking results with QS (Huang, 2011b). The QS World University Rankings provide students with the relevant information when they decide to study abroad, and these rankings provide a comparison of universities in different countries,

TABLE 1 Evaluation dimensions, indicators, proportions, and data acquisition methods for the QS World University Rankings (Quacquarelli Symonds, 2022b; Tian, 2022).

Evaluation dimensions	Indicators	Proportions	Data acquisition methods
Teaching and research performance	Academic reputation	40%	Questionnaire
Student performance	Employer reputation	10%	Questionnaire
Teaching	Faculty/student ratio	20%	Provided by the school
Research	Citations per faculty	20%	Using Scopus database (The impact of papers in the past 5 years)
Internationalization	International faculty ratio	5%	Provided by the school
Internationalization	International student ratio	5%	Provided by the school

helping students to select a suitable university. The QS World University Rankings was first published in 2004, and the ranking system includes more than 3,000 universities worldwide (Wang, 2015). The top 500 universities have their own independent rankings. Universities ranked between 500 and 600 are grouped in terms of 10 universities (one group of 10 universities between 501 and 510, one between 511 and 520, etc.). Universities ranked between 600 and 800 are clustered in groups of 50 (one group between 601 and 650, one between 651 and 700, etc.). Universities ranked above 800 are categorized into groups of 200 (i.e., one group for universities ranked 801–1,000; Quacquarelli Symonds, 2022b). Table 1 shows the evaluation dimensions, indicators, proportions, and data acquisition methods for the QS World University Rankings.

## 5. QS world university rankings in Taiwan's universities

### 5.1. Taiwanese universities in top 500 universities in the QS world university rankings from 2021 to 2023

Table 2 presents the Taiwanese universities that are placed among the top 500 universities in the QS World University Rankings from 2021 to 2023.

The world university rankings influence several top universities in Taiwan. Some of the top universities have improved their rankings, and others exhibit the regression of their rankings. Additionally, only two universities are private institutions, namely Taipei Medical University and Chang Gung University. Consequently, public universities in Taiwan often receive more resources.

However, Professor Huang, in his article "Do not Compete for Rankings in Universities," bitterly argued that universities rankings have led to fighting for the number of international journal articles published, developing the paper industry, corrupting the academic

TABLE 2 Taiwanese Universities in Top 500 Universities in QS World University Rankings from 2021 to 2023 (Quacquarelli Symonds, 2020, 2022a, 2023).

School name	2021 Ranking	2022 Ranking	2023 Ranking
National Taiwan University	66	68	77
National Tsing Hua University	168	180	178
National Cheng Kung University	234	252	222
National Yang Ming Chiao Tung University		268	202
National Taiwan University of Science and Technology	267	314	327
National Taiwan Normal University	331	334	332
Taipei Medical University	387	407	384
National Sun Yat-sen University	416	412	428
National Taipei University of Technology	488	469	436
Chang Gung University	493	480	475

atmosphere and ethics, hollowing out local academics, harming social harmony, disconnected industry needs, domination of academic freedom, [and] competition for power and interests in the distribution of academic resources. Taiwan's long-term pursuit of rankings, the Science Citation Index, and the Social Science Citation Index has produced more far-reaching problems, particularly the lack of local research (Chang, 2022; Tian, 2022).

## 5.2. Two cases for sustainable development: National Taiwan University and Taipei Medical University

### 5.2.1. National Taiwan University

Since its establishment in 1928, NTU has been the leader of higher education in Taiwan and has faced and tackled a variety of challenges on the path toward excellence (National Taiwan University, 2022).

Professor Wei-Zhao Chen, who served as the President of National Taiwan University for 12 years since 1993, wrote in his book *National Taiwan University's Vision for the New Century* that "what [National Taiwan University] should do is take advantage of the strengths of world-class universities and establish a unique academic style as a benchmark for Taiwanese academia" (Chen and Chen, 2021).

National Taiwan University was founded in 1928 and was formerly known as Taipei Imperial University during the Japanese occupation. At that time, the first principal was the head of たいら. At the end of World War II in 1945, Japan surrendered, and Taiwanese independence was restored. On November 15 of the same year, the Taiwanese government restructured and renamed Taipei Imperial University as National Taiwan University, and Dr. Zong-Luo Luo was named the first president (National Taiwan University, 2022).

After Taiwanese independence in 1945, Taiwan's academic system was divided into departments and colleges. Each academy was renamed as a faculty, and the Faculty of Arts and Political Science was divided into the Faculty of Arts and the Faculty of Law in addition to the Faculties of Science, Medicine, Engineering, and Agriculture. In the six colleges and 22 departments, approximately 1,855 students were enrolled in the 36th academic year. Faculties and departments are gradually receiving more teachers, technology, and resources. In the 110th academic year, the school has expanded to 16 colleges (including international colleges, innovative design colleges, science and technology research colleges, common education centers, and higher education colleges), three professional colleges (dentistry, veterinary medicine, and pharmacy), 56 departments, 139 research institutes, and 32 master's and doctoral programs, with a student population of approximately 32,000 (approximately 16,000 in university departments).

National Taiwan University is the most influential university in Taiwan and has trained many top scholars, including Taiwan's first Nobel Prize winner Dr. Yuan-Zhe Li, and numerous heads of state and business leaders. National Taiwan University has a large staff and large campuses in Taipei, Yilan, Hsinchu, Yunlin, and the central mountains. The campus is approximately 34,000 ha, accounting for 1% of the total area of Taiwan and providing teachers and students with an ecologically diverse research environment (National Taiwan University, 2022).

### 5.2.2. Taipei Medical University

Since its establishment in 1960, Taipei Medical University is a famous medical university in Taiwan. Professor Chien-Huang Lin, the current President of Taipei Medical University, mentioned that Taipei Medical University is "inheriting and innovating, moving toward a world-class university" (Lin, 2020).

Taipei Medical University has 11 colleges and one general education center. Approximately 6,000 students are enrolled, and the university has more than 45,000 alumni distributed globally. Taipei Medical University's goal is to "[cultivate] biomedical talent with humanistic care, innovation ability, and international outlook," and the university is a "research-oriented university with medical education as the foundation and clinical use of biomedicine." The university actively develops teaching and research resources and the medical education system. Taipei Medical University has integrated and optimized many of its teaching and research resources, promoting its internationalization. The university continues to move toward becoming a world-class university (Lin, 2020).

In terms of education, an interdisciplinary college was established in 2018, which consists of an interdisciplinary learning center, an innovation and entrepreneurship education center, and a digital self-learning center. The interdisciplinary college encourages innovation and entrepreneurship, provides cross-disciplinary education, and cultivates students who have a broad range of biomedical talent. In terms of research, Taipei Medical University has gradually focused on several key areas, including cancer translation, neuromedicine, thoracic medicine, artificial intelligence medicine, cell therapy, and medical equipment. The results are supported and affirmed by the government research department. Regarding innovation, the school has established 12 startups. Moreover, the university established the Taipei Medical University Entrepreneurship Fund, introduced business accelerators, and guided innovative research and development. In terms of internationalization, Taipei Medical University has deepened ties and cooperation with key international universities, such as Johns Hopkins University, Case Western Reserve University, University of Southern California, Imperial College London, University of Lille, and Hokkaido University (Lin, 2020).

### 5.2.3. Discussion for sustainable development in two universities

Since the concept of "sustainable development" was put forward, countries around the world have implemented sustainable development to achieve sustainable development of the economy, society, and environment (Wang and Zhou, 2023).

Taiwan can be said to have developed a mass higher education system by international comparison (Wang, 2002). With the popularization of higher education, some universities in Taiwan are keen to pursue the ranking of world universities.

The establishment of World-Class Universities (WCUs) is noted as a paramount development in the realm of international higher education (Kang, 2015). National Taiwan University and Taipei Medical University are among the top-performing national and private universities in Taiwan's universities in the QS World University Rankings. As suggested by Professor Wei-Zhao Chen, National Taiwan University must take advantage of the strengths of world-class universities and establish a unique academic style (Chen and Chen, 2021). Hence, to improve its ranking, National Taiwan University is enhancing the quality of teaching, developing cross-disciplinary

research, strengthening innovation, and increasing internationalization and cooperation with research institutions for sustainable development (Hsu, 2022).

Taipei Medical University announced that in 2020, a total of 2,216 scientific articles were published, and 872 articles were published in journals with an impact factor of 5 or higher. Two indicators, teaching and internationalization, increased, and the university's ranking improved significantly (Pan, 2022). In the 2023 QS World University Rankings announced on June 9, Taipei Medical University ranked 384th among world universities and the first among private universities in Taiwan. The QS World University Rankings have long focused on academic and employer reputation surveys, teacher–student ratios, article citations, internationalization, and other metrics to evaluate university performance. In the latest rankings, more than 1,400 universities worldwide were included. Among the ranking indicators, the teacher–student ratio index of Taipei Medical University was the most prominent, with the university ranking among the top 150 universities in the world. Additionally, the number of article citations, the proportion of international students, and the proportion of international foreign teachers were all higher than the global average. Taipei Medical University is therefore positioned as a top international “research-oriented university based on medical education and clinical use of biomedicine” that provides high-quality teaching and research for sustainable development (Taipei Medical University, 2021, 2023).

This study found that both universities are improving their teaching, research, and internationalization based on the indicators of the QS World University Rankings and the development of school affairs. The universities employ international faculty, cooperate internationally on projects, developing cross-disciplinary research, strengthening innovation, and increasing internationalization and cooperation with research institutions.

In addition, globalization has also affected the field of higher education by highlighting challenges in the technological revolution faced by teachers and students. Teachers require training in ICT to achieve quality and innovation in their pedagogical practices so that they could offer great opportunities to improve the quality of higher education (Salcedo, 2022). This would also update their professional skills to improve the quality of the teaching/learning process to promote the Quacquarelli Symonds (QS) World University Rankings in Taiwan. Such a discussion can promote the sustainable development of Taiwan's higher education system and understand global competition among universities in Taiwan's higher education workplace.

## 6. Reflections

Human capital cultivated and accumulated through higher education features the key competency of the workforce. Higher education is recognized as one of the most important accelerators for economic development and industrial advancement (Chen and Chen, 2021). Higher education has made significant contributions to the sustainable development of global society in terms of improving the level of science and technology and optimizing the moral system of citizens (Li, 2023). Higher education must ensure that it contributes to social justice, considering the concept of University Social Responsibility. Thus, institutions must seek an organizational model

that contributes to society. In higher education institutions, the teaching staff must adjust their pedagogical proposals based on the guidelines declared by the university. Then, students would acquire skills that will allow them to behave professionally with a sense of social responsibility (Castillo-Paredes et al., 2022). There is a profound influence of universities on the development of higher education in a country.

Globalization trends are now fundamental for education reform in many nations, and higher education affects a country's development and success (Wang and Shih, 2022). The global rankings of universities have become both popular with the public and increasingly important for higher education institutions (Kifor et al., 2021). World university rankings are regarded as an important tool to assess higher education quality. There are several media sources that publish world university rankings every year. These ranking results are mainly based on academic indicators, including research and teaching, with different weightings (Lin and Chen, 2021). With the rapid expansion of higher education and the increase in the number of universities, higher education has entered a new era of marketization. In the 21st century, higher education has become globalized, and the relationships among universities has become increasingly international. Hence, internationalization has become a global phenomenon in higher education. A country needs to improve its national competitiveness through international students and scholars. Higher education has also become increasingly competitive. Ensuring high-quality university education has become a public concern; thus, university rankings inform the public of university development in relation to other international universities (Hou, 2008b; Wang, 2015; Huang, 2022; Huang and Wang, 2022).

Our current global education system is failing to address these alarming challenges and provide quality learning for everyone throughout life. We know that education today is not fulfilling its promise to help us shape peaceful, just, and sustainable societies. These findings were detailed in UNESCO's Futures of Education Report in November 2021 which called for a new social contract for education (UNESCO, 2022).

In today's globalized economy, educational policies are frequently translated from a global setting and recontextualised in a specific national context, and higher education is the foundation of a country's competitiveness and provide quality learning for university students throughout life. The university focuses on the tasks of teaching, research, and public services, affecting the development of the economy, politics, society, and the country. International university rankings can therefore be used to attract global talent. World university rankings can enhance the reputation of universities and can be used to examine their quality. Moreover, world university rankings enable universities to compete and survive. Thus, some universities in Taiwan are committed to achieving higher rankings for sustainable development (Weng and Liao, 2016; Hsieh and Huisman, 2017).

However, some comments about World University Rankings in Taiwan. They claimed that higher education should not continue to learn China how to fight for rankings, but to learn from the West to fight for freedom of university governance. Taiwan's government concentrates funds on a small number of universities to continue to pursue world university rankings, and sacrificing the rights and interests of the majority of university students, which will only make university education get worse (Lu, 2022).

## 7. Conclusion and implications

Within the higher education system, research universities play a critical role in training the professionals, high-level specialists, scientists, and researchers needed by the economy and in generating new knowledge in support of the national innovation system. In this context, an increasingly pressing priority of many governments is to make sure that their top universities are considered as “world-class” (Salmi and Altbach, 2016).

This study investigated world university rankings, a crucial area of concern within the Taiwanese higher education system. First, university rankings as a university strategy in Taiwan. Due to declining birth rates, many universities in Taiwan face potential closure. Therefore, raising university rankings has become a strategy for universities to compete and survive for sustainable development.

Second, the study explored issues related to world university rankings. Third, Taiwanese universities that were among the top 500 universities in the QS World University Rankings from 2021 to 2023 were examined. This study determined that public universities enjoy more resources, possibly due to the pursuit of university rankings. Hence, the Taiwanese government should provide more teaching and research resources to universities that pursue world university rankings. Fourth, this study found that both National Taiwan University and Taipei Medical University promote teaching, research, and internationalization. Both universities also employ international professors, cooperate internationally on projects, and attract foreign students. The findings may serve as a reference for improving QS World University Rankings and promote the sustainable development of Taiwan’s higher education system, and understand global competition among universities in Taiwan’s higher education system.

Finally, this study found that both universities are improving their teaching, research, and internationalization based on the

indicators of the QS World University Rankings and the development of school affairs. The universities employ international faculty, cooperate internationally on projects, developing cross-disciplinary research, strengthening innovation, and increasing internationalization and cooperation with research institutions, and attract foreign students for sustainable development. The findings may serve as a reference and implications for improving QS World University Rankings and promote the sustainable development of Taiwan’s higher education system, and understand global competition among universities.

## Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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