

WHAT MATTERS ABOUT ACADEMICS' JOB SATISFACTION? AN ANALYSIS FROM TAIWAN APIKS SURVEY

Sophia Shi-Huei Ho¹, Cheng-Ta Wu² and Robin Jung-Cheng Chen^{2*}

¹University of Taipei, Taiwan, ²National ChengChi University, Taiwan,

**Corresponding Author*

ABSTRACT

Various governance and academic performance disadvantages due to changes in social systems have led to increasing competition and teachers' work dissatisfaction among higher education institutions in Taiwan. Building on the academic profession in the knowledge-based society (APIKS) survey, this study examines the perspective of university teachers in Taiwan, leaving insights on the perception and approval of teaching, research, university governance, and the correlation between the three constructs with job satisfaction, as well as unearthing whether these constructs foreshadow job satisfaction. SPSS statistics 25.0 and Amos 25.0 were adopted, and 1,224 valid questionnaires were collected. Results overall indicate that: (1) policy content influences academics' intentions; (2) crisis awareness acts as the best motivation for universities and teachers to initiate change; (3) institutional characteristics had the highest influence and predictive power on teachers' job satisfaction; and (4) emphasis on the institution's mission, effective leadership, good communication, and collegiality in the decision-making process will increase job satisfaction. Based on the analyses, several recommendations and further investigation are forwarded.

Key Words: Academic performance, APIKS survey, job satisfaction, Taiwan, university governance

Introduction

The 21st century's major axis is the development of a knowledge economy. Higher education has provided an arena for growth and competition, enabling worldwide knowledge innovation and human capital (Barrett, 2019; Borkovic, Nicolacopoulos, Horey, & Fortune, 2020). Thus, the competitive advantage of universities has become a critical indicator for national development and ascendancy. Taiwan's higher education institutions (HEIs) have expanded rapidly, from 105 in 1986 to a peak of 163 in 2011. Later, due in part to declining birth rates, some universities have merged or closed, reducing the overall figure to 152 HEIs in 2019 (Ministry of Education, 2020). In 2011, the number of full-time professors also increased to 49,929; however, universities assessing low enrollment and insufficient school funding left faculty positions vacant as teachers retired, leaving the figure in a total of 45,945 teachers in 2019 (Ministry of Education, 2020).

Notwithstanding, the 76.2% higher education admission rate has allowed an increase in the accessibility and universality of Taiwan's HEIs, having the literacy rate (age 15 and above) reach 98.96% (Executive Yuan Gender Equality Committee, 2020). However, demanded qualifications in the job market and changes in international competition have impacted the nature of university education in Taiwan. Today, universities are not merely the palazzos of knowledge creation, high-quality teaching and research, as well as socially responsible practices, are also expected to make the school a political, economic, social, and cultural interweaving and interactive institution (Peng & Ho, 2019).

As Taiwan's government gradually moved towards deregulation, the most salient shift has been the increasing power of university leadership and regulation of the academic profession (Amsler & Shore, 2017). Therefore, Taiwan's higher education has evolved from emphasizing alignment with the country's economic development blueprint to gradually focusing on university positioning and developing school-distinctive areas of expertise; namely, the government steered firmly the development and direction of higher education in the past and has now begun to allow institutional autonomy and academic freedom (Chen, 2019; Kohtamäki, 2019).

With the shift of concern from narrow to diversified demands, universities face unprecedented challenges encountering pressure at the national level to subsist and while also competing in the international ranking system. Furthermore, the ministry of education (MOE) has adopted a key-performance-indicator-based evaluation method to allocate funding and encourage universities to cooperate with policy development and meet international standards (Dembereldorj, 2018; Liu, 2016). Additionally, HEIs also face internal challenges, ensuring faculty job satisfaction is imperative to high competitiveness at both the national and international levels. 'Highly satisfied faculty will generally be innovative and motivated to establish and maintain an environment conducive to learning' (Truell, Price, & Joyner, 1998, p.120). Universities must then adopt

diverse institutional governance schemes to increase faculty job satisfaction which will in turn drive cooperation, school quality, and prestige. On this note, the first aim of the contribution delves into the following research questions. What is the perception of university teachers in Taiwan to the current institutional governance? Is job satisfaction related to the type of institutional governance or requirements?

University teachers hold significant influence to exert school affairs and quality assurance as well as having a key role in the development of social talents. Ergo, merging academics' teaching and research responsibilities with institutional development and requirements improves the university's sustained development and increases substantially academics' job satisfaction (Albert, Davia, & Legazpe, 2018; Ho, 2014; Mamiseishvili, Miller, & Lee, 2016). Namely, if the faculty's multiple roles (teaching and research) are acknowledged by their institutions, faculty hence matches educational targets and internationalization policies (Arimoto & Daizen, 2013; Bentley, Coates, Dobson, Goedegebuure, & Meek, 2013); this meaning quality course design and research output whilst sustaining a certain degree of satisfaction with academic autonomy and the overall working environment (Balbachevsky & Schwartzman, 2013). Therefore, the second drive of this study explores the following research questions. What is the degree of perception and approval of university teachers' expectations and requirements for teaching and research? Is job satisfaction related to faculty's teaching effectiveness or research performance?

In the past, the funding of universities was based on an equal distribution principle, that is, consistent standards or leveled allocation to meet the basic operational needs (Ministry of Education, 2009). However, after the 1990s, to enhance the competitiveness of universities, the allocation of higher education funds began applying international standards, including 'choice' and 'concentration' as principles (Liu & Chan, 2017; Shin, Watanabe, Chen, Ho, & Lee, 2020; Tai, 2006); simply put, the original funding scheme based on the number of teachers, students and operations were replaced by the linkage of fund obtention with the performance of university research output or teaching results (Arimoto, 2014; Dougherty & Reddy, 2011; Miller, 2016).

Taiwan's MOE has promoted several competitive projects since 2004 to improve the quality of teaching and create top-tier universities (Ho & Nyeu, 2009; Wang, 2013). Past research showed that a university's path is influenced by key performance indicators (KPI) set by policy makers, shifting the evolvement of higher education from 'target' to 'indicator' oriented (Ministry of Education, 2019; Chan, 2017). The neglect of distinctive spheres of expertise and positioning for KPI-based funding led to undiversified institutional development. In addition, teachers struggled to achieve requirements and indicators, resulting in academics' disappointment and letdown (Stensaker, Lee, Rhoades, Ghosh, Castiello-Gutiérrez, Vance, Çalikoğlu, Kramer, Liu, Marei, O'Toole, Pavlyutkin, & Peel, 2019). For this purpose, the third drive of this study is to identify the major factors influencing and predicting job satisfaction in the context of higher education in Taiwan: university governance, teaching, and research.

Literature Review

In recent years, advanced countries have begun to decentralize their HEIs by instating market-oriented practices that allow higher managerial autonomy within institutions, giving rise to a new governance model for the operation of higher education (Hemsley-Brown & Oplatka, 2006; Teichler, 2017; Young, 2002). New managerialism emerged, as a result, embracing core ideologies of market competition, deregulation, and privatization (Chan, 2010; Chen, 2019). Examining Clark's (1983) propositions, Chan (2010) analyzed and compared Taiwan's higher education under tight state authority and academic oligarchy to market models, uncovering that Taiwan's centralized leadership has now become market-oriented under the influence of new managerialism. Chen (2019) specifically outlined the significance of new managerialism to higher education, including: (1) the merger of government regulations and market functions; (2) emphasis on accountability and outcomes; (3) strengthening the disaggregation of an organization with professional management; (4) increase of administrative transparency; and (5) more efficient resource allocation.

Research indicates that university administrators should possess the following perspectives: (1) functional, the causal link of quality and relevance under the knowledge society (Espinosa, 2019; Neubauer, 2011); (2) structural, rankings and rising stratification of higher education (Stack, 2020); (3) organizational, increasing managerial power or governance (Apkarian, Mulligan, Rotondi, & Brint, 2014; Sims, 2019; Shin, 2011); and (4) spatial, internationalization and globalization (Wadhwa, 2016; Yonezawa & Shimmi, 2015). With these perspectives in mind, good governance allows for superior functional balance, institutional structure, and international cooperation to develop strategies on key issues and strengthens pressure helpful for implementation. Besides, Locke, Cummings, and Fisher (2011) propose university governance not solely be labeled as strong or weak, good or bad; shared governance between institutional administrators and academics is the most successful.

Shin (2010) also identified from the angle of the resource dependence theory that when the external environment changes, universities will selectively respond to the needs related to subsistence or growth. If the government proposes financial incentives at this juncture, it greatly encourages universities to enhance performance and employ efforts to match policy goals and performance standards, leading to major changes in the governance model, especially when multi-stage key evaluations with predetermined indicators are matched with the funding mechanism (Shin & Kehm, 2013). This design creates a higher response from universities to societal demands, which are often significantly influenced by the country (Shin et al., 2020).

In 2001, the MOE publishes the 'university education policy white book', which outlines the importance of 'pursuing excellence and improving quality' to promote effective use of resources and improve teaching and research quality (Ministry of Education, 2001). The establishment of an increased quantity of HEIs in Taiwan is leading to an oversupply of schools, at the same time,

as enrollments increase, the average student profile quality decreases. In addition, recent government budgetary constraints have not been capable of supporting the expansion of educational funding, which has led to the dilution of overall educational resources. The quality and competitiveness of universities will naturally be affected by the constraint of funding (Wang, Chou, & Wang, 2018).

Moreover, past leveled funding allocation placed an excessive emphasis on standardized equality, which by lacking the establishment of competition and evaluation schemes resulted in excessive resource dispersion; this failed to guide schools into building areas of expertise, affecting institutional quality. The continuous promotion of performance-based projects such as the ‘research university integration program’ and ‘development of top-tier universities and top research centers’, etc. by the MOE (Ministry of Education, 2005) focused on improving the research standards of universities. However, funding indicators and acceptance solely emphasized the research performance of universities, causing university teachers to favor research over teaching, severely sidelining the essence of education (Arimoto, 2015; Weert, 2013). Therefore, the ‘rewarding university teaching excellence program’ and the ‘higher education sprout project’ are implemented to amend the challenges faced by higher education. The MOE attempts to highlight teaching quality and student learning effectiveness, expecting teachers to pursue teaching excellence and professional development. Nevertheless, Wang (2013) indicates that university teachers’ involvement in academic research has evident benefits for their prestige and promotion due to its practical and quantified evaluation, while equally entailing disregard for teaching.

Work satisfaction refers to an individual’s emotional orientation towards work roles and experience. Getzels, Lipham, and Campbell (1968) believe that ‘satisfaction’ is a function that exists in the consistency between individual needs and institutional expectations. When personal needs are consistent with systematic expectations, satisfaction will reach the highest point and when inconsistent, satisfaction will reach the lowest point. In other views regarding the level of ‘job satisfaction’, Lawler and Porter (1967) summarize Maslow's needs with a slight difference shown in the physiological needs being omitted and replaced by higher-level autonomous needs. Therefore, academics’ professional life and job satisfaction are highlighted as essential research topics in higher education. Institutional environment (Balbachevsky & Schwartzman, 2013), university governance, and teaching and research (Arimoto & Daizen, 2013; Bentley et al., 2013; Höhle & Teichler, 2013;) have all shown significant impact on the overall job satisfaction of university professors. Furthermore, job satisfaction has a profound impact on the quality of higher education services and organizational commitment (Trivellas & Santouridis, 2016).

Hypotheses

Founded on the aforementioned literature and drivers, research hypotheses are as follows:

1. University teachers with different background variables present significant differences in their perceptions of university governance, research, and teaching.
2. University teachers' perceptions and approval of research, teaching, university governance, and work satisfaction have significant correlations.
3. University governance and teachers' input and performance in teaching and research have significant predictive power on work satisfaction.

Methodology

To verify the research hypotheses, the authors utilized the scale developed by the Academic Profession in the Knowledge-based Society (APIKS) survey to measure the cognition of selected variables by university teachers in Taiwan. APIKS is an international and comparative study, which is the third wave after Changing Academic Profession (CAP) 2007 and Carnegie 1992 projects (Arimoto, 2015), aiming to understand the creation and emergence of the knowledge society, comparing academics' changing working conditions across the world with more than 20 participating countries including Japan, South Korea, Germany, Finland, etc. Taiwan joined the APIKS project in 2018.

As shown in Figure 1, analyses in the present research statistically compare perceptual differences regarding teachers' research, teaching, and university governance contingent on personal background and institutional information. Subsequently, the relation between job satisfaction and the three constructs of teachers' research, teaching, and university governance was verified separately. Finally, the authors unearth whether these three constructs foreshadow job satisfaction.

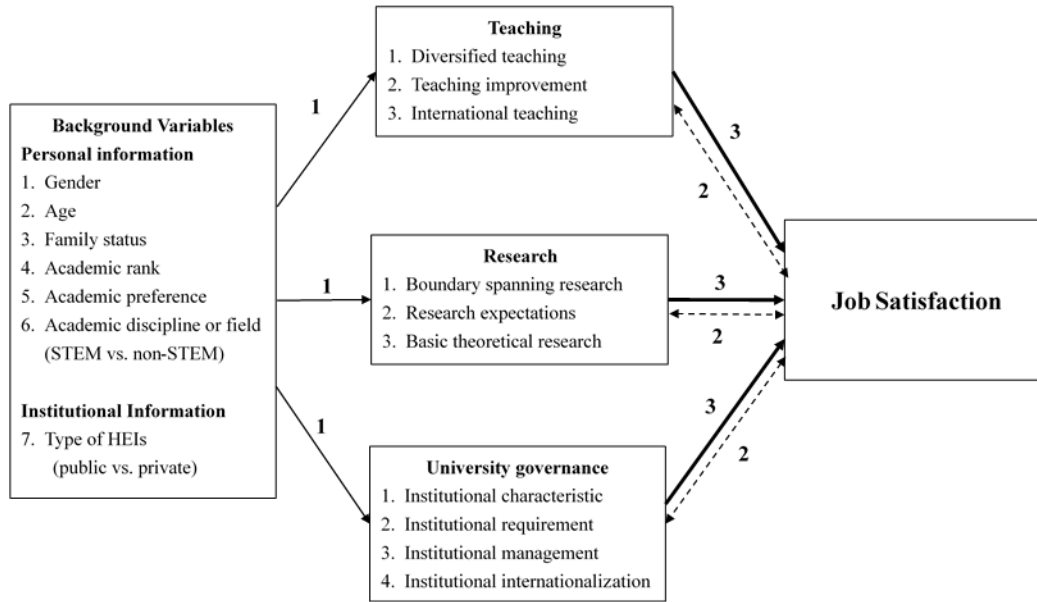


Figure 1: Research Framework

Samples and procedure

This study was conducted with teachers from HEIs in Taiwan with the sampling source originating from 152 colleges and universities. Institutional review board (IRB) approval was granted before the dispersal of the survey instrument. Considering the broad number of full-time teachers, purposive sampling was conducted. To obtain representation in sampling, the study established institutions' geographical location (northern, central, and southern Taiwan) and type (public vs. private) as criteria for sampling and classification before issuance. The survey was distributed between March to July 2019. The authors firstly contacted participants willing to accept or university administrators willing to assist in forwarding the survey by phone or email. After the informed and consent procedure, a physical survey was distributed for participants to fill in and return with anonymity. Pertaining a total of 1,800 surveys distributed, 1,438 were completed, of which 1,224 rendered valid (recovery rate of 68%).

SPSS Statistics 25.0 and Amos 25.0 were used to test the reliability, validity, and suitability of the measurement modes ensuring the quality of the surveys and items considered. First, descriptive statistics, *t*-tests, and one-way analysis of variance tested whether university teachers with different background variables reflect varying perceptions on the three constructs of teaching, research, and university governance. Then, Pearson product-moment correlation coefficient verified the correlation of the three constructs with job satisfaction. Finally, a multiple stepwise regression analysis revealed the construct which holds a major impact and foreshadowing on job satisfaction.

Measures and variables

This research extracts questionnaire items from APIKS survey, namely the four constructs of 'Teaching', 'Research', 'University governance', and 'Job satisfaction' for study and analysis. APIKS questionnaire uses the Likert five-point scale to represent 1 for 'strongly disagree' to 5 for 'strongly agree'. The following is an explanation of each construct and the analyzed results from the items.

1. Teaching

From the APIKS survey, a total of 8 questions were selected to form the 'teaching' construct to understand the university teachers' perception and approval of teaching activities such as: 'Practically oriented knowledge and skills are emphasized in your teaching', 'At your institution, there are adequate training courses for enhancing teaching quality', and 'Your research activities reinforce your teaching'.

To ensure the consistency and stability of the items extracted for this section, the authors performed Cronbach's α internal consistency analysis. The statistical results showed standardized Cronbach's $\alpha=.62$, confirming credibility. In addition, the KMO value of the selected items for teaching equaled 0.67, and a Bartlett sphericity test valued 1170.36 ($p<.001$), allowing exploratory factor analysis (EFA) to be performed. Following the analysis results, the authors labeled items in the teaching sub-constructs as 'diversified teaching', 'teaching improvement' and 'international teaching'; three sub-constructs to serve as independent variables for subsequent prediction in 'job satisfaction'. As for validity on teaching-related items, the Confirmatory Factor Analysis (CFA) results indicated that the suitability between the data and the model rendered not satisfactory, yet acceptable (RMSEA = .01, GFI = .956, AGFI = .907, RMR = .051).

2. Research

This study extracts 10 questions from the APIKS survey for analysis to understand the perception and approval of university faculty on research input; to mention a few of the measurement items: 'Socially-oriented/intended for the betterment of society', 'Commercially-oriented/intended for technology transfer', 'Being active in carrying the research results beyond typical publications', 'Complying to guidelines for research set by research funders', and 'Based in one discipline'.

The statistical result of standardized Cronbach's $\alpha=.42$ for the research construct as barely credible, KMO of 0.60, and a Bartlett sphericity test value of 776.47 ($p<.001$), meaning EFA could be performed. The authors made concise items into three sub-constructs 'boundary spanning research', 'research expectations', and 'basic theoretical research' as independent

variables for subsequent predictions of 'job satisfaction'. In terms of validity, the CFA results showed good suitability between the data and the model (RMSEA = .065, GFI = .969, AGFI = .947, RMR = .078, PGFI = .564, PNFI = .513, PCFI = .534).

3. University Governance

The authors also extracted 20 questions from the APIKS survey for analysis to understand the degree of perception of teachers on university governance, to name a few: 'At your institution, there is a strong emphasis on the institution's mission', 'There is collegiality in decision-making processes', 'Performance-based allocation of resources to academic units', 'There is a competent leadership', 'There is good communication between management and academics', and 'There is a top-down management style'.

The statistical results of standardized Cronbach's $\alpha=.87$, KMO value of 0.90, and the Bartlett sphericity test value of 9041.55 ($p<.001$), allowing EFA for 'university governance' to be performed. Following the analysis results, the present study capsuled the 'university governance' items into four sub-constructs: 'institutional internationalization', 'institutional characteristic', 'institutional requirement', and 'institutional management', as independent variables for subsequent prediction of 'job satisfaction'. For the validity of 'university governance', the data and model were suitable through CFA (RMSEA = .078, GFI = .894, AGFI = .864, PGFI = .698, PNFI = .731, PCFI = .744).

4. Job Satisfaction

The authors extracted 3 questions from the APIKS survey for analysis to comprehend the degree of perception and status of university teachers' job satisfaction; namely, 'My job is a source of considerable personal strain', 'Teaching and research are hardly compatible with each other' and 'If I had it to do over again, I would not become an academic'. Job satisfaction serves as the dependent variable in this research. The statistical results of standardized Cronbach's $\alpha=.52$, KMO value of 0.60, and a Bartlett sphere test value of 236.449 ($p<.001$), allowing EFA for 'job satisfaction' to be performed. For the validity of 'job satisfaction', the data and model were suitable through CFA (GFI = 1.000, NFI=1.000, CFI=1.000, RMR=.000).

Results

To uncover the perception of university teachers in Taiwan on 'teaching', 'research' and 'university governance' and the three constructs' relation and foreshadowing of 'job satisfaction', a total of 1,224 valid surveys were collected consisting of 64.91% males and 35.09% females with the age distribution of 21.5% in the range of 36-45 years old, 39.6% in the range of 46-55 years old, and 38.9% in the range of 56 years and older. Regarding family status,

84.7% 'married/partner' and 15.3% 'single'. Concerning academic rank, 22.2% for 'professor', 37% 'associate professor', 40.8% 'assistant professor'. In terms of academic preference, a higher portion (62%) of teachers identified as 'teaching oriented' while 38% as 'research oriented'; for academic discipline or field, 51.8% of respondents are dedicated to 'STEM' fields, 48.2% are 'non-STEM'; 62.1% of respondents belong to 'public HEIs' while 37.9% to 'private HEIs'. The perceptions of university teachers on teaching, research, and university governance under distinct background variables are shown in Table 1 and Table 2. The analysis results and discussion are as follows.

University teachers' perceptions of teaching, research, and university governance under distinct background variables

As seen in Table 1, for gender in the 'research' construct, the scores of male teachers are significantly higher on 'boundary spanning research' and 'basic theoretical research' compared to those of female teachers, showing $t=1.97, p<.05$, and $t=3.03, p<.01$ respectively. Overall, the total score for research is still considerably higher for male teachers than for females ($t=2.75, p<.01$). It is apparent from the research segment that male teachers are more attentive to research input than females and greatly regard boundary spanning cooperation while participating and investing more in basic research.

Detailed in the age section, the authors observe significant disparities of university teachers depending on age in the three sub-constructs of 'research expectations' ($F=4.77, p<.01$), 'institutional internationalization' ($F=4.93, p<.01$), and 'institutional characteristic' ($F=7.97, p<.001$); as did the two constructs of 'research' ($F=3.19, p<.05$) and 'university governance' ($F=4.02, p<.05$). Therefore, a succeeding comparison using the Scheffe method discovered that average scores of 36-45-year-old university teachers are considerably higher than those of 46-55 and 56-and-over years old on 'research expectations', 'institutional internationalization' and 'institutional characteristic'. Regarding the construct of 'university governance', university teachers between 36 and 45 years old are also substantially higher than those over 56 years old. Within the family status section, the analysis found that 'institutional requirement', the average score of 'married/partner' teacher was to a large extent lower than the average score of 'single' teacher ($t=-2.18, p<.05$).

Table 1: Variance analysis for gender, age, and family status of university teachers on construct or sub construct

Gender			
Construct or Sub-construct	T	p-value	
Boundary spanning research	1.97	0.05	Male > Female
Basic theoretical research	3.03	0.00	Male > Female
Research	2.75	0.01	Male > Female
Age			
Construct or Sub-construct	F	p-value	Scheffe's tests
Research expectations	4.77	0.01	36-45 > over 56 ($p<.05$) 46-55 > over 56 ($p<.05$)
Research	3.19	0.04	46-55 > over 56 ($p<.05$)
Institutional internationalization	4.93	0.01	36-45 > over 56 ($p<.05$) 46-55 > over 56 ($p<.05$)
Institutional characteristic	7.97	<.001	36-45 > over 56 ($p<.05$) 46-55 > over 56 ($p<.05$)
University governance	4.02	0.02	36-45 > over 56 ($p<.05$)
Family status			
Sub-construct	T	p-value	
Institutional requirement	-2.180	0.029	Single > Married/partner

Referring to ‘academic rank’ in Table 2, the authors use one-way ANOVA to verify. The results display notable differences in average scores of two sub-constructs ‘boundary spanning research’ ($F=3.82, p<.05$) and ‘institutional characteristic’ ($F=3.06, p<.05$) for university teachers of distinct academic ranks; average scores in the ‘research construct’ are also significantly different ($F=3.22, p<.05$). Afterward, the Scheffe method was used for further comparison. Considering the elevated strictness of the test method, the average score of the sub-construct of ‘institutional characteristic’ has no significant difference among academic ranks, however for the ‘research’ construct and ‘boundary spanning research’, the ‘professor’ category is notably higher than ‘associate professor’.

Concerning ‘academic preference’ the present study divides teachers’ self-conscious personal academic tendencies into: ‘teaching oriented’ and ‘research oriented’. The analysis results indicate that whether it is ‘international teaching’ ($t=-4.81, p<.001$), ‘boundary spanning

research’ ($t=-3.69, p<.001$), ‘research expectations’ ($t=-3.26, p <.001$) and ‘institutional characteristic’ ($t=-2.39, p<.05$), or ‘teaching’ construct ($t=-3.18, p<.001$) or ‘research’ construct ($t=-4.35, p<.001$), teaching-oriented teachers are notably lower than research-oriented ones. Conversely, teaching-oriented teachers’ perception of ‘institutional requirement’ ($t=2.26, p<.05$) and ‘institutional management’ ($t=3.23, p<.001$) is higher than research-oriented teachers. In addition, regarding the academic field, intriguing results indicate STEM teachers ranking notably lower than non-STEM teachers in the section of ‘boundary spanning research’ ($t=-2.07, p<.05$). Even so, the ‘research expectations’ of university teachers show the perception of STEM teachers substantially higher than that of non-STEM teachers ($t=3.15, p<.01$).

Table 2: Variance analysis for academic rank, academic preference, **the** academic field of university teachers on 30 constructs or sub-construct

Academic rank			
Construct or Sub-construct	F	p-value	Scheffe’s tests
Boundary spanning research	3.82	0.02	Prof.>Asso. Prof. ($p<.05$)
Research	3.22	0.04	Prof.>Asso. Prof. ($p<.05$)
Institutional characteristic	3.06	0.05	Not significant
Academic preference			
Construct or Sub-construct	t	p-value	
International teaching	-4.81	<.001	Research > Teaching
Teaching	-3.18	<.001	Research > Teaching
Boundary spanning research	-3.69	<.001	Research > Teaching
Research expectations	-3.26	<.001	Research > Teaching
Research	-4.35	<.001	Research > Teaching
Institutional characteristic	-2.39	0.02	Research > Teaching
Institutional requirement	2.26	0.02	Teaching > Research
Institutional management	3.23	<.001	Teaching > Research
Academic discipline or field			
Sub-construct	t	p-value	
Boundary spanning research	-2.07	0.04	non-STEM > STEM
Research expectations	3.15	0.00	STEM > non-STEM

The relationship between Taiwan’s university teachers’ job satisfaction with teaching, research, and university governance

The present study utilizes Chiou's (2010) proposition as the criterion for judgment; provided the correlation coefficient $|r|$ of less than .10, ‘weak or no correlation’ is identified; between .10 and

.39 implies ‘low correlation’; between .40 and .69 is ‘moderately correlated’; between .70 and .99 connotes ‘highly correlated’; $|r|$ is 1 is ‘completely correlated’. Observing Table 3, a low-degree positive and significant correlation is found between ‘teaching’ and ‘job satisfaction’ (.17). The correlation coefficient among each sub-construct and ‘job satisfaction’ in the ‘teaching’ construct ranges from .09 to .17, also meaning weak to a low-degree positive correlation. Notwithstanding, the correlation coefficient between the ‘research’ construct and ‘job satisfaction’ is solely .09, a weak positively significant correlation, and the correlation between ‘boundary spanning research’ and ‘job satisfaction’ has not reached a significant level.

Finally, the correlation coefficient between the constructs of ‘university governance’ and ‘job satisfaction’ is .15, meaning a low-degree positively significant correlation. The correlation coefficients of ‘institutional characteristic’, ‘institutional internationalization’ to ‘job satisfaction’ are .30 and .23 respectively, both of which are low-degree positively significant correlations. The interesting finding is that the correlation coefficient between ‘institutional management’ and ‘job satisfaction’ is -.20 which is a low-degree negatively significant correlation.

Table 3: Correlations matrix of job satisfaction with each construct/sub-construct

	DT	TI	IT	T	BSR	RE	BTR	R	II	IC	IR	IM	UG	JS
JS	.09**	.17**	.09**	.17**	0.04	.08**	.06*	.09**	.23**	.30**	.10**	-.20**	.15**	1

Note: Teaching=T; Diversified teaching=DT; Teaching improvement=TI; International teaching=IT; Research=R; Boundary spanning research=BSR; Research expectations=RE; Basic theoretical research= BTR; University governance= UG; Institutional internationalization= II; Institutional characteristic=IC; Institutional requirement=IR; Institutional management= IM; Job satisfaction=JS

The foreshadowing of job satisfaction from university teachers’ teaching, research, and university governance

This study identifies sub-constructs in ‘teaching’, ‘research’ and ‘university governance’ as independent variables, and ‘job satisfaction’ as the dependent variable, to apply multiple stepwise regression analysis to understand which factors have foreshadowing effects on ‘job satisfaction’. After multiple stepwise (Stepwise Estimation) regression screenings, the criterion for selecting a variable is the probability of F value $\leq .05$, while the criterion for deleting a variable is the probability of F value $\geq .10$. After analysis, a total of five items were selected as regression prediction variables: ‘institutional characteristic’, ‘institutional management’, ‘teaching improvement’, ‘basic theoretical research, and ‘institutional internationalization’. Subsequently, the authors gradually selected these five variables into mode 1 to mode 5; mode 1, adjusted R^2 (0.09), $F = 116.43$, $p < 0.001$; mode 2, adjusted R^2 (0.13), $F = 94.84$, $p < 0.001$; mode 3, adjusted R^2 (0.14), $F = 66.03$, $p < 0.01$; mode 4, adjusted R^2 (0.14), $F = 50.94$, $p < 0.05$; as

indicated in Table 4, mode 5, adjusted R^2 (0.14), $F = 41.78$, $p < 0.05$, reached statistical significance considering the regression effect is at a noteworthy level.

Table 4: Multiple regression analysis - ANOVA^a

Model	Sum of squares	df	Mean square	F	Sig.
5 Regression	89.01	5	17.80	41.78	<.001 ^f
Residual	519.04	1218	0.43		
Total	608.05	1223			

a. Dependent Variable: Job Satisfaction

f. Predictors: (Constant), Institutional characteristic, Institutional management, Teaching improvement, Basic theoretical research, Institutional internationalization

The five variables predict a total of 14.3% explanatory power for ‘job satisfaction’. When the individual explanatory power is in mode 1, the ‘institutional characteristic’ variable reaches an explanatory power of 8.6%; after the addition of ‘institutional management’ in mode 2 the explanatory power increases by 4.7% (cumulative explanatory power of 13.3%); when mode 3 joins ‘teaching improvement’ the cumulative explanatory power reaches 13.8%; when mode 4 joins ‘basic theoretical research’ the cumulative explanatory power reaches 14.0%. Finally, as shown in Table 5 (model summary), when mode 5 is added to ‘institutional internationalization’ the explanatory power increases to 14.3%. Therefore, inference of ‘institutional characteristic’ explaining to the highest degree, followed by ‘institutional management’, and the roughly similar explanatory power of ‘teaching improvement’, ‘basic theoretical research’ and ‘institutional internationalization’ to be allowed.

Table 5: Multiple regression analysis - Model summary

Model	R	R square	Adjusted R square	Std. Error of the estimate
5	0.38 ^a	0.15	0.143	0.65

a. Predictors: (Constant), Institutional characteristic, Institutional management, Teaching improvement, Basic theoretical research, Institutional internationalization

In addition to testing the explanatory power of respective variables for the dependent variable, the multiple regression analysis also examines the ‘collinearity’ problem to determine whether the independent variables of the regression model are truly independent. As shown in Table 6, coefficients in mode 5, when the five independent variables append the regression model, the constant is 2.47. ‘institutional characteristic’ variable is $B = .22$, and the standardized regression coefficient $\beta = 0.24$, $t = 6.90$, $p < 0.001$, attains significance, with tolerance = 0.59, VIF = 1.70, finally this translates into an absent collinearity problem. ‘Institutional management’ variable is $B = -.20$, and the standardized regression coefficient $\beta = -.23$, $t = -8.46$, $p < 0.001$, reaching significance, tolerance = 0.99, VIF = 1.01, finally showing absence of a collinearity problem. Other variables such as ‘teaching improvement’, ‘basic theoretical research’, and ‘institutional

internationalization’ are equally significant without a collinearity problem. Thus, the regression equation of this study may be written as:

$$\text{Job Satisfaction} = 2.47 + 0.22 \text{ Institutional characteristic} - 0.20 \text{ Institutional management} + 0.06 \text{ Teaching improvement} + 0.06 \text{ Basic theoretical research} + 0.07 \text{ Institutional internationalization}$$

Table 6: Multiple Regression Analysis - Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity statistics	
	B	Std. Error	β			Tolerance	VIF
5							
(Constant)	2.47	0.16		15.69	<.001		
Institutional characteristic	0.22	0.03	0.24	6.90	<.001	0.59	1.70
Institutional management	-0.20	0.02	-0.23	-8.46	<.001	0.99	1.01
Teaching improvement	0.06	0.03	0.07	2.38	0.02	0.86	1.16
Basic theoretical research	0.06	0.03	0.06	2.23	0.03	0.99	1.01
Institutional internationalization	0.07	0.03	0.07	2.13	0.03	0.60	1.66

a. Dependent Variable: Job Satisfaction

The present findings confirm the negative impact of ‘institutional management’ on teachers’ job satisfaction in HEIs in Taiwan. As per the standardized coefficient β value, ‘institutional characteristic’ reveals the highest influence while ‘basic theoretical research’ is the lowest. Among variables owning positive influence, ‘institutional characteristic’ has the highest; noting the negative influence caused by ‘institutional management’ is lower than the positive influence of ‘institutional characteristic’. To conclude, ‘institutional characteristic’, ‘institutional management’, ‘teaching improvement’, ‘basic theoretical research’ and ‘institutional internationalization’ all have explanatory power for ‘job satisfaction’ and have foreshadowing effects.

Discussion

The increasing accessibility of higher education in Taiwan, declining birth rates, and the impact of global competition pressure universities to transcend past governance models to operate effectively. Although the MOE emphasizes the importance of university autonomy, academic freedom, and system deregulation, pressures from international competition and budget constraints in recent years have led the government to performance-based funding schemes, accenting teaching effectiveness and industry-academia cooperation (Chan, 2016; Hsu & Li, 2014).

Under specific policy guidelines and performance indicators, universities are encouraged to develop distinctive traits by following the purpose and function of their establishments and are expected to develop personalized operations, however, university development tends to follow the directions specified by government funding guidelines (Shin et al., 2020). Over time, university reforms appear to be aimed at performance while maintaining hints of bureaucracy, alongside a campus culture of first come first served and one may demand more of junior teachers as they must still face promotion stages.

This study, by way of comparison, while considering different background variables, detected teachers between the ages of 36 and 45 to be more attentive than senior members of the expectations of research, campus internationalization, institutional governance, and other related issues. It can be hypothesized that teachers between the ages of 36 and 45 are in the process of career promotion, needing to further regard institutional research requirements and experience more opportunities for interaction and administrative activities. Even so, a university is the assemblage of all teachers and students, therefore academic performance and administrative input must not be sustained only by junior teachers. If more communication channels between senior and junior members are created, increased participation and joint decision-making will contribute to the future development of the university.

In addition, evidence from this study reveals the average scores of ‘professors’ in the ‘research’ construct and ‘boundary spanning research’ to be significantly higher than those of ‘associate professors.’ These statistical findings reflect the fact that professors possess more resources and connections in interdisciplinary or industry-academia cooperation, equaling more means and momentum for academic cooperation than associate professors (see Table 2). This conclusion also reflects the HEIs and teachers’ condition of the strong remain powerful while the weak remain frail; in other words, while the government pursues market-oriented mechanisms and academic excellence, the authors perceive blind spots and veiled concerns of Taiwan’s funding allocation and performance indicators. If policies emphasize industry-academia research and development and technology transfer, investment in basic theoretical research becomes indispensable. In addition, cultivating potential assistant or associate professors by granting them funding for research represents opportunities that can be the key paths for university sustainable research development.

The execution of program and affair advancements rely on teachers; especially with Taiwan’s increased higher education accessibility, students’ enrollment conditions vary, implying teachers’ increased devotion to teaching and counseling. Results in the present study are coherent with the reality of Taiwanese teachers’ powerlessness to meet research output requirements while managing daily teaching affairs. Moreover, policy content influences academics’ intentions (Bowden & Gonzalez, 2012; Zgaga, Teichler, Schuetze, & Wolter, 2019), and teaching faculty obtain more recognition and execution opportunities compared to research faculty as they experience more contact with recent performance-based projects promoted by the

MOE (such as the teaching excellence project), institutional indicators, related regulations, multi-promotion policy, and institutional management styles, etc. Although institutional autonomy is a prerequisite for universities and teachers to engage freely in academic work and to stimulate creativity, autonomy and accountability are two sides of the same coin (Euben, 2002). Teachers who demand greater faculty autonomy must simultaneously reflect on the increased teaching and research responsibility.

In addition, Taiwan's non-STEM teachers manifest a higher perception of 'boundary spanning research' than STEM ones. A reasonable explanation may be the response of non-STEM teachers as their departments experience low student admissions, job shortages, and lack of employment competitiveness. To avoid merged or abolished departments, active reflection on possible solutions, regard of interdisciplinary research, social service which reflects both theory and practice, and market-oriented industry research and development is conducted. In Taiwan, the declining birthrate is the greatest crisis in school operations, especially in private universities; crisis awareness acts as the best motivation for universities and teachers to initiate change (Roeser & Peck, 2009). This ability to perceive and adapt to sustained development or complex crossroads allows non-STEM academics to be more flexible while searching for cross-disciplinary opportunities so that the traditional discipline gradually remaps its scope. Even so, the uncertainty of the discipline will remain so long as the job market evolves.

The relationship between teaching, research, university governance, and job satisfaction among university teachers in Taiwan indicated a weak to a low degree of positive and significant correlation in all sub-constructs except for 'boundary spanning research' (not significant). In terms of predictive capacity on university teachers' job satisfaction, 'institutional characteristics' had the highest influence, especially when school's senior administrators demonstrate effective leadership. Emphasis on the institution's mission, effective communication between management and academics, and collegiality in the decision-making process will increase teachers' job satisfaction. In contrast, 'institutional management' indicated a negative impact on the job satisfaction of university teachers. Since teachers enjoy high social prestige and practice in a complex body of knowledge, a possible rationalization for the negative impact may be that high-pressure and top-down management models create dissatisfaction and unwillingness to cooperate with school policies. Therefore, it is recommended that university leaders provide effective communication and an administrative support system to substitute requirements with encouragement, inspiring faculty willingness and support towards institutional planning and policy implementation (Teichler, 2017).

Concluding Remarks

The prime contribution of the present study is to enrich the field of higher education from the perspective of university teachers, leaving insights on the two most important responsibilities of personal academic tasks (teaching and research), the perception and approval of university governance, and the correlation between job satisfaction. Its conclusions and recommendations add to a diversity of literature on governance and academic profession in changing academia for a non-western context. Finally, by setting job satisfaction as the dependent variable, the authors may observe factors that predict university teachers' job satisfaction under declining birth rates, global competition, and institutional transformation. After all, under the premise of comprehensive reforms in higher education systems around the world, university teachers in Taiwan have recognized the need to integrate the academic profession, industrial practices, and the market. This crisis awareness has led non-STEM teachers to further participate in multidisciplinary and socially oriented research for the betterment of society. This phenomenon is true for university teachers who have persistently emphasized academic freedom and academic identity, a truly complicated transformation to build.

Alternatively for university governance, 'institutional characteristics' have become an important positive factor in foreshadowing teacher job satisfaction; teachers expect university administrators to have effective leadership to encounter the dynamical and competitive environment of higher education. Universities should clearly state tailored positioning and missions, stress communication, and collegial governance models with bottom-up decision-making. This regard also reflects the gradual effect of academic authority and power in HEIs promoted by the MOE after the passage of the 'university law' in Taiwan (Liu, 2014). By contrast, the top-down management style has become a negative factor in predicting teacher job satisfaction. This finding is the worthy inspiration for Taiwan's current university governance model, reminding school administrators pursuing world rankings, performance, or funding allocation to include the voice and participation of grassroots teachers when planning and implementing strategies.

To conclude, a hope from university teachers to become influential on key academic policies exists. This research has given rise to many questions in need of further investigation in the following areas: how can universities create supportive and collegial campus atmospheres and administrative operations? and how is shared governance impacting Taiwan's current university governance model?

References

- Albert, C., Davia, M. A., & Legazpe, N. (2018). Job satisfaction amongst academics: The role of research productivity. *Studies in Higher Education*, 43(8), 1362-1377.
- Amsler, M., & Shore, C. (2017). Responsibilisation and leadership in the Neoliberal University: A New Zealand perspective. *Discourse: Studies in the Cultural Politics of Education*, 38(1), 123-137.
- Apkarian, J., Mulligan, K., Rotondi, M. B., & Brint, S. (2014). Who governs? Academic decision-making in US four-year colleges and universities, 2000-2012. *Tertiary Education and Management*, 20(2), 151-164.
- Arimoto, A. (2014). The teaching and research nexus in the third wave age. In Shin, J. C., Arimoto, A., Cummings, W. K., & Teichler, U. (Eds.), *Teaching and research in contemporary higher education: Systems, activities, and rewards* (pp. 15-33). Dordrecht: Springer.
- Arimoto, A. (2015). The teaching and research nexus from an international perspective. In Cummings, W. K., & Teichler, U. (Eds.), *The relevance of academic work in comparative perspective* (pp. 91-106). Dordrecht: Springer.
- Arimoto, A., & Daizen, T. (2013). Factors determining academics' job satisfaction in Japan from the perspective of role diversification. In Bentley, P. J., Coates, H., Dobson, I., Goedegebuure, L., & Meek, V. L. (Eds.), *Job satisfaction around the academic world* (pp. 145-165). Dordrecht: Springer.
- Balbatchevsky, E., & Schwartzman, S. (2013). Job satisfaction in a diverse institutional environment: The Brazillian experience. In Bentley, P. J., Coates, H., Dobson, I., Goedegebuure, L., & Meek, V. L. (Eds.), *Job satisfaction around the academic world* (pp. 55-82). Dordrecht: Springer.
- Barrett, B. (2019). The dual roles of higher education institutions in the Knowledge-Economy. *International Journal of Multidisciplinary Perspectives in Higher Education*, 4(1), 74-88.
- Bentley, P. J., Coates, H., Dobson, I. R., Goedegebuure, L., & Meek, V. L. (2013). Academic job satisfaction from an international comparative perspective: Factors associated with satisfaction across 12 countries. In Bentley, P. J., Coates, H., Dobson, I., Goedegebuure, L., & Meek, V. L. (Eds.), *Job satisfaction around the academic world* (pp. 239-262). Dordrecht: Springer.
- Borkovic, S., Nicolacopoulos, T., Horey, D., & Fortune, T. (2020). Students positioned as global citizens in Australian and New Zealand universities: A discourse analysis. *Higher Education Research & Development*, 1-16.
- Bowden, R. G., & Gonzalez, L. (2012). Faculty appointments and scholarly activity: A changing of the guard? *International Journal of Higher Education*, 1(2), 166-183.
- Chan, P. H. (2017). Exploring the strategic planning direction of higher education resource allocation from the perspective of comparative interest and competitive advantage. *Taiwan Education Review Monthly*, 6(4), 01-08.

- Chan, S. J. (2010). Reforming higher education governance policy in Taiwan: The perspective of new managerialism. *Journal of Educational Resources and Research*, 94, 1-20.
- Chan, Y. (2016). Recent promotion of policies of collaboration between industry and higher education in Taiwan. *Taiwan Education Review*, 702, 10-18.
- Chen, R. J. (2019). *Educational administration and governance: New managerialism approach*. Taipei, Taiwan: Xuefu Culture.
- Chiou, H. (2010). *Quantitative research and statistical analysis -SPSS/PASW Chinese Windows version data analysis example analysis* (Fifth Edition). Taipei, Taiwan: Wu-Nan Book Inc.
- Clark, B. R. (1983). *The higher education system. Academic organization in cross-national perspective*. Berkeley, LA: University of California Press.
- Dembereldorj, Z. (2018). Review on the impact of world higher education rankings: Institutional competitive competence and institutional competence. *International Journal of Higher Education*, 7(3), 25-35.
- Dougherty, K. J., & Reddy, V. (2011). *The impacts of state performance funding systems on higher education institutions: Research literature review and policy recommendations*. Community College Research Center Working Paper No. 37, Columbia University, New York, NY.
- Espinosa, E. O. C. (2019). The formation of intellectual capital and its ability to transform higher education institutions and the knowledge society. *IGI Global*, 1-312.
- Euben, D. R. (2002). *Academic freedom of professors and institutions*. Washington, DC: American Association of University Professors. Retrieved from <https://www.aaup.org/issues/academic-freedom/professors-and-institutions>
- Executive Yuan Gender Equality Committee (2020). *Literacy rate of the population over 15*. Retrieved from https://www.gender.ey.gov.tw/gecdb/Stat_Statistics_Detail/Data.aspx?sn=cC3K6vUAfeUITCcfbr03CQ%3D%3D
- Getzels, J. W., Lipham, J. M., & Campbell, R. F. (1968). *Education administrations as a social process, theory, research, practice*. New York, NY: Harper & Row.
- Hemsley-Brown, J., & Oplatka, I. (2006). Universities in a competitive global marketplace: A systematic review of the literature on higher education marketing. *International Journal of Public Sector Management*, 19(4), 316-338.
- Ho, C. C., & Nyeu, F. Y. (2009). Globalization and higher education strategic alliance. *Bulletin of Educational Resources and Research*, 44, 29-50.
- Ho, S. H. (2014). New thinking on school institutional research: The establishment of student enrollment management models in universities and colleges. *Evaluation Bimonthly*, 52, 14-18.

- Höhle, E. A., & Teichler, U. (2013). Determinants of academic job satisfaction in Germany. In Bentley, P. J., Coates, H., Dobson, I., Goedegebuure, L., & Meek, V. L. (Eds.), *Job satisfaction around the academic world* (pp. 125-144). Dordrecht: Springer.
- Hsu, Y. D., & Li, J. Y. (2014). A review of the implementation of university autonomy from the perspective of the legal status of universities: Focusing on the legal personalization of universities. *Contemporary Educational Research Quarterly*, 22(1), 169-209.
- Kohtamäki, V. (2019). Academic leadership and university reform-guided management changes in Finland. *Journal of Higher Education Policy and Management*, 41(1), 70-85.
- Lawler, E. E., III., & Porter, L. W. (1967). The effect of performance on job satisfaction. *Industrial Relations*, 7, 20-28.
- Liu, K. C. (2014). A discourse analysis on 'Stepping Towards premier University' policy in Taiwan: The perspective of post-structuralism. *Taiwan Journal of Sociology of Education*, 14(2), 33-71.
- Liu, H. H., & ChanYang, Y. (2017). Research funding allocation mechanism in higher education in the United Kingdom and its implications for Taiwan. *Contemporary Educational Research Quarterly*, 25(2), 77-112.
- Liu, N. C. (2016). Academic ranking of world universities and the performance of East Asian universities. RIHE international seminar reports. No. 24. *Research Institute for Higher Education*, 1-16.
- Locke, W., Cummings, W., & Fisher, D. (2011). Comparative Perspectives: Emerging Findings and Further Investigations. In Locke, W., Cummings, W. K., & Fisher, D. (Eds.), *Changing governance and management in higher education: The perspectives of the academy*. (pp. 369-380). Dordrecht: Springer.
- Mamiseishvili, K., Miller, M. T., & Lee, D. (2016). Beyond teaching and research: Faculty perceptions of service roles at research universities. *Innovative Higher Education*, 41(4), 273-285.
- Miller, T. (2016). Higher education outcomes-based funding models and academic quality. *Lumina Foundation*, 1-18.
- Ministry of Education, Taiwan, ROC. (2001). *University education policy white paper*. Taipei, Taiwan: The author.
- Ministry of Education, Taiwan, ROC. (2005). *Rewarding University Teaching Excellence Project- 94 annual project work manual*. Taipei, Taiwan: The author.
- Ministry of Education, Taiwan, ROC. (2009). *Review of the current situation of higher education and the development strategy project report on the pursuit of excellence*. Taipei, Taiwan: The author.
- Ministry of Education, Taiwan, ROC. (2019). *Higher education sprout project*. Retrieved from <https://sprout.MOE.edu.tw/SproutWeb/Project/Origin>
- Ministry of Education, Taiwan, ROC. (2020). *Education statistical information network*. Retrieved from <https://stats.MOE.gov.tw/>

- Neubauer, D. E. (2011). The emergent knowledge society and the future of higher education: Asian perspectives. *Comparative development and policy in Asia*. *Routledge, Taylor & Francis Group*. 1-224.
- Peng, Y. P., & Ho, S. H. (2019). Does HEI external social capital lead to better performance? Examination of mediating model of internal social capital and institutional slack resource. *Contemporary Educational Research Quarterly*. 27(3), 65-99.
- Roeser, R. W., & Peck, S. C. (2009). An education in awareness: Self, motivation, and self-regulated learning in contemplative perspective. *Educational Psychologist*, 44(2), 119-136.
- Shin, J. C. (2010). Impacts of performance-based accountability on institutional performance in the US. *Higher Education*, 60(1), 47-68.
- Shin, J. C. (2011). South Korea: Decentralized Centralization – Fading Shared Governance and Rising Managerialism. In Locke, W., Cummings, W. K., & Fisher, D. (Eds.), *Changing Governance and Management in Higher Education: The Perspectives of the Academy* (pp. 321-342). Dordrecht: Springer.
- Shin, J. C., & Kehm, B. M. (eds.) (2013). *Institutionalization of World-class University in Global Competition*. Springer.
- Shin, J. C., Watanabe, S., Chen, R. J., Ho, S. H., & Lee, J. (2020). Institutionalization of competition-based funding under neoliberalism in East Asia, *Studies in Higher Education*, DOI: 10.1080/03075079.2020.1823641
- Sims, M. (2019). Neoliberalism and new public management in an Australian University. *Australian Universities' Review*, 61(1), 22-30.
- Stack, M. (2020). Academic stars and university rankings in higher education: Impacts on policy and practice. *Policy Reviews in Higher Education*, 4(1), 4-24.
- Stensaker, B., Lee, J. J., Rhoades, G., Ghosh, S., Castiello-Gutiérrez, S., Vance, H., Çalıkoğlu, A., Kramer, V., Liu, S., Marei, M. S., O'Toole, L., Pavlyutkin, I., & Peel, C. (2019). Stratified university strategies: The shaping of institutional legitimacy in a global perspective. *Journal of Higher Education*, 90(4), 539-562. Tai, H. H. (2006). *World-class universities: Excellence and innovations*. Taipei, Taiwan: Higher Education Cultural.
- Teichler, U. (2017). Academic profession, higher education. *Encyclopedia of International Higher Education Systems and Institutions*, 1-67.
- Trivellas, P., & Santouridis, I. (2016). Job satisfaction as a mediator of the relationship between service quality and organizational commitment in higher education. An Empirical Study of Faculty and Administration Staff. *Total Quality Management & Business Excellence*, 27(1-2), 169-183.
- Truell, A. D., Price, W. T., & Joyner, R. L. (1998). Job satisfaction among community college occupational-technical faculty. *Community College Journal of Research and Practice*, 22(2), 111-122.
- Wadhwa, R. (2016). New phase of internationalization of higher education and institutional change. *Higher Education for the Future*, 3(2), 227-246.

Wang, B. J., Chou, C. P., & Wang, H. H. (2018). *Evaluation of the effectiveness of rewarding university teaching excellence project* (RDEC-RES-099-023). Retrieved from <https://ws.ndc.gov.tw/Download.ashx?u=LzAwMS9hZG1pbmlzdHJhdG9yLzEwL3JlbGZpbGUvNTY0NC8zMjM4LzAwNTg5MjBfMS5wZGY%3D&n=MjAxMTA4MzAxNTQwNTY0MDcxNDgwLnBkZg%3D%3D&icon=.pdf>

Wang, S. P. (2013). Policy analysis of establishing the world-class university in Taiwan from international perspectives. *Educational Resources and Research*, 112, 151-175.

Weert, E. de. (2015). Teaching and Research in Binary Systems of Higher Education: Convergent or Distinctive Profiles? In Cummings, W. K., & Teichler, U. (Eds.), *The relevance of academic work in comparative perspective* (pp.75-90). Dordrecht: Springer.

Yonezawa, A., & Shimmi, Y. (2015). Transformation of university governance through internationalization: Challenges for top universities and government policies in Japan. *Higher Education: The International Journal of Higher Education Research*, 70(2), 173-186.

Young, I. M. (2002). *Inclusion and Democracy*. USA: Oxford University Press.

Zgaga, P., Teichler, U., Schuetze, H. G., & Wolter, A. (2019). *Higher education reform: Looking back -- Looking forward, second revised edition. Higher education research and policy*. Peter Lang Publishing Group.