APPLYING TDI INDEX IN ASSESSING TEACHER DEVELOPMENT AT PUBLIC UNIVERSITIES IN THE MEKONG DELTA

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Abstract

This study applies the Teacher Development Index (TDI) to evaluate the level of faculty development at public universities in the Mekong Delta region based on indicators of training, finance, age, and teaching quality. The results show significant differences between universities in component indicators. Thereby, the study suggests appropriate human resource development strategies for each school.

Keywords: *Educational management, Faculty Development Index (TDI), human resources development, Mekong Delta, public universities.*

ỨNG DỤNG CHỈ SỐ TDI TRONG ĐÁNH GIÁ PHÁT TRIỂN GIẢNG VIÊN TẠI CÁC TRƯỜNG ĐẠI HỌC CÔNG LẬP VÙNG ĐỒNG BẰNG SÔNG CỬU LONG

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Tóm tắt

Nghiên cứu này ứng dụng Chỉ số phát triển giảng viên (TDI - Teachers Development Index) để đánh giá mức độ phát triển giảng viên tại các trường đại học công lập vùng Đồng bằng sông Cửu Long dựa trên các chỉ số về đào tạo, tài chính, độ tuổi và chất lượng giảng dạy. Kết quả cho thấy sự khác biệt rõ rệt giữa các trường trong các chỉ số thành phần và đề xuất các chiến lược phát triển nguồn nhân lực phù hợp cho từng trường.

Từ khóa: *Chỉ số phát triển giảng viên (TDI), đại học công lập, Đồng bằng sông Cửu Long, phát triển nhân lực, quản lý giáo dục.*

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1. Introduction

The Mekong Delta has long been considered a "depression area" in terms of education and training. Most educational indicators of the region are below the national average and lag behind other regions. As a result, the challenges faced by the education and training sector in localities within the region are often more severe than those in other areas (Bui, 2024; General Statistics Office, 2022; Nguyen, 2022; Nguyen & Vu, 2020; Phan & Tran, 2022). The proportion of PhD-holding lecturers at universities and teacher training colleges in this region accounts for only 7.21% of the national average, compared to over 50% in the Red River Delta (Bui, 2024).

Therefore, enhancing the qualifications of human resources in public universities in the Mekong Delta, particularly lecturers, is imperative. To improve the quality of human resources, determining faculty development indicators serves as a reference point for public universities in the region to evaluate the level of investment and outcomes achieved in human resource development, thereby guiding the effective management of these activities.

The TDI - Teachers Development Index was developed to quantify the criteria for faculty development. It serves as a source of information for universities to assess, compare, and evaluate the level of faculty development at their institution compared to others. This helps guide the formulation of strategies, directions, and investment roadmaps for human resource development suitable for each university. The factors influencing faculty development include teaching quality, academic qualifications, financial resources, and age demographics. Specifically: 1) Training Index: Measures lecturer academic qualifications, including the percentage of lecturer meeting or exceeding standards, the average number of years spent in training, and other related training factors. 2) Financial Expenditure Index: Measures the level of investment in lecturer, based on the average financial expenditure per lecturer. 3) Age Index: Measures the average age of lecturer within each age group, representing the structure and stability of the workforce. 4) Teaching Quality Index: Measures teaching effectiveness through performance evaluations and the proportion of faculty meeting professional standards.

This article presents some research findings on the current state of human resource training at public universities in the Mekong Delta region. It also calculates the TDI and provides commentary on several TDI results for public universities in the region.

2. Literature review, research history and hypothesis development

2.1. Literature review and research history

According to Coursera (2024), human resource management typically includes the process of attracting, screening, and selecting qualified candidates for jobs; evaluating and managing employee performance to ensure alignment with organizational goals; developing salary, bonus, and benefits policies; providing career development opportunities for employees through training and professional development programs; managing employer-employee relationships, addressing issues such as work-life balance, conflict resolution, and employee rights; ensuring a safe working environment; and complying with labor laws and regulations to protect the organization and its workforce. Coursera (2024) also noted that human resource management at universities is a critical aspect to ensure these institutions operate efficiently and productively. It involves the strategic management of faculty and staff to support the mission and objectives of the university. Accordingly, universities require effective human resource management to attract and retain talented individuals, ensure legal compliance, and create a positive working environment that fosters employee success and satisfaction.

Given its importance, human resource management at universities has been prioritized in research. Lee et al. (2020) maintain that in Asia, the emergence of socio-economic development has made this continent extremely significant. As a result, human resource management issues have developed significantly. The development of social human resources is closely related to human resource development at universities. They are pioneers in research, and their human resources play a vital role in training high-quality personnel for society. Therefore, human resource management at universities has become critically important and urgent.

Evaluating lecturer quality under educational qualifications, professional standards, and performance outcomes focuses on individual assessments as members of the human resource. The method using the Teachers Development Index (TDI) aims at a comprehensive evaluation of human resource development (Le, 2017/2021). TDI is a method used to integrate and quantify criteria that significantly impact the development of the teaching staff into an index. This serves as a tool for education managers to analyze, compare, and assess the comprehensive development process of lecturers, thereby providing optimal solutions for policy planning towards sustainable development.

Calculating TDI indicators is derived from four component indices (ibid): the training index, financial expenditure index, age index, and the index of actual teaching quality. These are fundamental factors that directly influence and govern the development level of the teaching staff. The formula for calculating TDI is as follows:

- Training index T

Step 1, calculate 2 component indicators:

T_1 is the rate of teachers meeting and exceeding training standards.

T_2 is the average number of years of training of the entire team:

$$T_2 = \frac{\sum Ni \ x \ Yi}{\sum\sum Ni}$$

Ni is the number of lecturers with the same training level I, Yi is the number of years of study to level i (Yi = 16, 18, 22 - in order of undergraduate, master's, doctoral degrees) and $\sum\sum Ni$ is the total number of lecturers of all levels.

Step 2, calculate the component indices $I(T_1)$, $I(T_2)$ according to the formula for calculating the Ii indices stated below.

Step 3, we take the weight of 2/3 for $I(T_1)$, 1/3 for $I(T_2)$ and calculate $I_1(T)$ follows the formula $I_1(T)$ = 2/3. $I(T_1)$ + 1/3. $I(T_2)$.

- Financial expenditure index F

F = lg (Regular financial expenditure/ lecturer).

Regual financial expenditure level refers to the total recurrent expenditure from all financial sources at a public university over a specific period (usually one year). By dividing the total recurrent expenditure by the total number of lecturers, the average expenditure per lecturer is obtained. To adjust for scaling, this average expenditure is also logarithmically transformed (decimal).

- Age index A

In practice, due to the large quantity of data and the difficulty of calculating the exact age of each lecturer, current statistics only provide data for specific age groups (typically grouped in 5-year intervals). Thus, the formula is relatively designed, where Nj represents the number of lecturers in age group j, Aj is the average age of group j and $\sum\sum Nj$ is the total number of lecturers across all age groups.

The formular is as follow:

$$A = \frac{\sum Nj \ x \ Aj}{\sum\sum Nj}$$

- Teaching quality index Q

The classification of lecturers' work, other than the categories of "fulfilled tasks" and above, is not considered, only the rate of "not completed tasks" is paid attention to.

To evaluate the quality of the requirements, we use the formula:

Q_1=1-{*Proportion of lecturers "not completed tasks"*}

Q_2=1-{*Proportion of lecturers not meeting professional standards*}

The quality index is as follow: $Q = (Q_1 + Q_2)/2$

TDI Calculation Methodology: For the selected indicators, the maximum and minimum values for each factor must be identified and incorporated into the formula. Five factors require determination of maximum and minimum values, as shown in Table 1.

The factors in the table are defined as follows:

Maximum: The highest value of a factor with an upper limit.

Minimum: The smallest value of a factor with a defined lower limit.

Actual Minimum: The lowest actual value achieved at the time of calculation.

Actual Maximum: The highest actual value achieved at the time of calculation.

Table 1. Maximum and minimum values to calculate TDI index

Criteria	Max values	Min values
Percentage of lecturers meeting and exceeding standards (%)	100	Actual Min
Duration of training time (years)	Max	Above Min
Financial expenditure/ lecturer (million VND)	Actual Max	Actual Min
Lecturer age (years)	60	Above Min
% teachers rated as satisfactory	100	Real Min

The developed component elements are calculated by the formula as follow:

$$Ii(k) = \frac{Real\ value\ (k) - Minimum\ (k)}{Maximum\ (k) - Minimum\ (k)}$$

With i=1,2,3,4 and k are component elements (k=T_1, T_2, F, A, Q).

Teacher development index (TDI) is calculated by the formula as follow:

$$I=(I_1+I_2+I_3+I_4)/4$$

With: I_1, I_2, I_3, I_4 are Training (T), Financial expenditure (F), Age (A) và Work quality (Q), respectively.

The Teacher Development Index (TDI) has been applied in various studies to compare the development of teaching staff across schools, regions, or countries. Studies on TDI in Vietnamese education, including those by Le (2017) and recent research, highlight the effectiveness of TDI in evaluating teacher human resources in the context of Vietnam.

2.2. Research hypothesis

The research hypothesis is the disparity in TDI among universities in the Mekong Delta is primarily due to differences in financial expenditure per lecturer and the age profile of lecturers.

3. Research methodology and research objects

3.1. Research methodology

Based on the research objectives and tasks, this article employs a systematic literature review and meta-analysis method to synthesize data from various studies to arrive at general conclusions. In addition, the author adopts a mixed-methods approach, incorporating both quantitative and qualitative research (Creswell, 2002). Quantitative results were collected through survey data. To refine, expand, or clarify issues identified in quantitative research, the author conducted in-depth interviews with administrators and lecturers from universities in the Mekong Delta region.
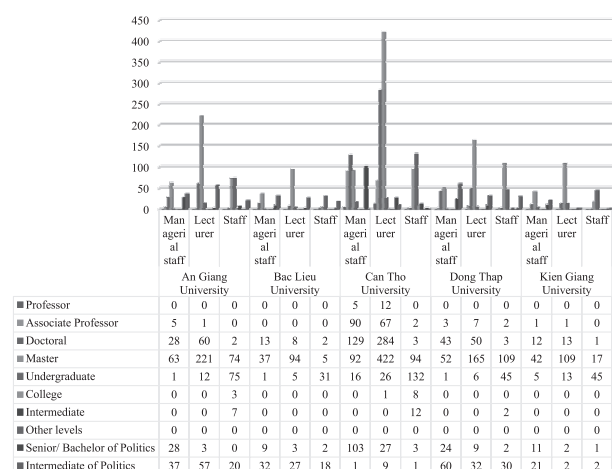
3.2. Research objects

The Mekong Delta has 11 public universities, the author chose 5 universities including An Giang University, Bac Lieu University, Can Tho University, Dong Thap University and Kien Giang University.

4. Results and discussions

4.1. The reality of the training levels of human resources in public universities in the Mekong Delta

Based on the organizational and operational regulations of public universities in the Mekong Delta and the collected data on the qualifications of administrators, lecturers, and specialists, it is evident that these personnel generally meet the requirements for their respective job positions in terms of qualifications. This alignment applies to specific titles and roles prior to their appointment to professional or leadership and managerial positions. The professional training levels of the human resources in public universities in the Mekong Delta region are illustrated in Figure 1.

	An Giang University			Bac Lieu University			Can Tho University			Dong Thap University			Kien Giang University		
	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff
Professor	0	0	0	0	0	0	5	12	0	0	0	0	0	0	0
Associate Professor	5	1	0	0	0	0	90	67	2	3	7	2	1	1	0
Doctoral	28	60	2	13	8	2	129	284	3	43	50	3	12	13	1
Master	63	221	74	37	94	5	92	422	94	52	165	109	42	109	17
Undergraduate	1	12	75	1	5	31	16	26	132	1	6	45	5	13	45
College	0	0	3	0	0	0	0	1	8	0	0	0	0	0	0
Intermediate	0	0	7	0	0	0	0	0	12	0	0	2	0	0	0
Other levels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Senior/ Bachelor of Politics	28	3	0	9	3	2	103	27	3	24	9	2	11	2	1
Intermediate of Politics	37	57	20	32	27	18	1	9	1	60	32	30	21	2	2

Figure 1. Professional training level of human resources related to job position

Regarding the educational qualifications of the management staff: Survey data shown in Figure 1 indicates that most universities meet the required standards for educational qualifications when considering and appointing managerial staff. The proportion of individuals with high educational qualifications is consistently higher among management staff compared to faculty members and specialists.

For the educational qualifications of faculty members: It reveals that most faculty members meet the required qualifications as stipulated by regulations. However, there are still some faculty members with the job title of "lecturer" whose highest degree is only a bachelor's. These cases do not meet the required educational qualifications as defined by the Higher Education Law. This situation can be explained by the fact that these faculty members were previously appointed to the lecturer position based on their extensive teaching experience and seniority. While they currently do not meet the qualification standards for lecturers, these individuals often face personal circumstances, are older, or experience difficulties in pursuing further studies to improve their qualifications.

Additionally, the qualifications required for faculty members teaching Defense and Security Education are not uniformly defined or aligned between the Higher Education Law and the Defense and Security Education Law. This inconsistency, as detailed in the "Regulations on the Implementation of the Defense and Security Education Law" under Decree No. 13/2014/ND-CP dated February 25, 2014, has led to a lack of a solid legal basis for assessing whether faculty members teaching defense and security meet the required educational qualifications. Clause 2, Article 6 of Decree No. 13/2014/ND-CP outlines the qualification standards for defense and security education faculty as follows: a) Holding a bachelor's degree or higher in defense and security education; b) Being a military or police officer with a university degree or higher; c) Holding a university degree or higher in other majors, along with a certificate in defense and security education training and a teaching skills certificate.

Regarding lecturer standards as stipulated in Clause 29, Article 1 of Law No. 34, the minimum qualification required for university lecturers is a master's degree, except for teaching assistants. Lecturers teaching master's and doctoral programs must have a doctoral degree. Furthermore, Clause 2, Article 5 of Circular No. 40/2020/TT-BGDĐT dated October 26, 2020, issued by the Ministry of Education and Training, specifies the codes, standards for job titles, appointments, and salary scales for public university lecturers. It outlines that the educational and training qualifications for appointing lecturers (rank III) must include a master's degree or higher relevant to the job position, field, or teaching specialization.
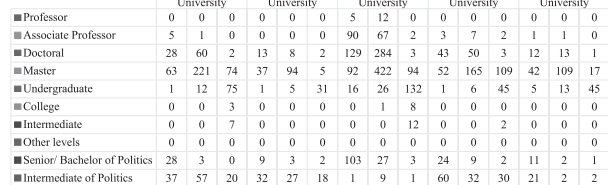
Therefore, universities currently face challenges in defining qualification standards when appointing lecturers for Defense and Security Education roles.

Interviews with management staff and faculty members at universities in the Mekong Delta region discover that the qualifications of the workforce generally meet or exceed the standards set for their respective job positions. The qualifications are highly regarded, with most lecturers possessing appropriate professional expertise, which contributes significantly to improving teaching and research quality. Among the universities, Can Tho University stands out with a high proportion of professors, associate professors, and doctoral degree holders compared to other institutions in the region. However, the overall distribution of qualifications within the workforce, especially among faculty members, is uneven. Highly qualified personnel are concentrated in fundamental and applied science disciplines. For specialized fields such as Music, Fine Arts, Physical Education, and Defense and Security Education, the proportion of faculty members with advanced qualifications remains relatively limited.

4.2. The reality of human resource structure in public universities in the Mekong Delta

Currently, there are no specific regulations regarding the qualification structure of management staff, lecturers, and specialists in public universities. The universities primarily base their requirements on the standards and conditions for qualifications specified for each professional title appointed, as well as the standards and conditions for qualifications required for each job position, as outlined in their staffing plans and organizational and operational regulations.

	An Giang University			Bac Lieu University			Can Tho University			Dong Thap University			Kien Giang University		
	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff	Managerial staff	Lecturer	Staff
Professor	0	0	0	0	0	0	5	12	0	0	0	0	0	0	0
Associate Professor	5	1	0	0	0	0	90	67	2	3	7	2	1	1	0
Doctoral	28	60	2	13	8	2	129	284	3	43	50	3	12	13	1
Master	63	221	74	37	94	5	92	422	94	52	165	109	42	109	17
Undergraduate	1	12	75	1	5	31	16	26	132	1	6	45	5	13	45
College	0	0	3	0	0	0	0	1	8	0	0	0	0	0	0
Intermediate	0	0	7	0	0	0	0	0	12	0	0	2	0	0	0
Other levels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Senior/ Bachelor of Politics	28	3	0	9	3	2	103	27	3	24	9	2	11	2	1
Intermediate of Politics	37	57	20	32	27	18	1	9	1	60	32	30	21	2	2

Figure 2. Human resource structure

From the data in Figure 2, the proportion of human resource with doctoral degrees among the total staff at public universities is as follows: Can Tho University accounts for 42.44%, Dong Thap University 22.13%, An Giang University 17.39%, Bac Lieu University 11.73%, and Kien Giang University 10.80%, respectively.

According to Bui (2024), universities and teacher training colleges in the Northern region have a higher proportion of lecturers with doctoral degrees compared to the Southern region. In particular, the Central Highlands and Mekong Delta have a very low proportion of lecturers with doctoral degrees. Specifically, the number of lecturers with doctoral degrees in teacher training universities and colleges in the Mekong Delta accounts for only 7.21% of the national average, while the Red River Delta takes up 51.01%.

Source: Binh Bui (2024)
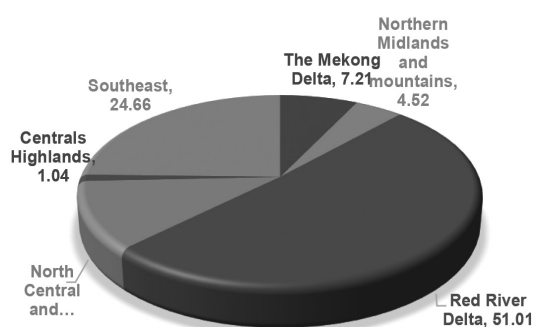
Figure 3. % university, college lecturers with doctoral degrees nationwide

On February 5, 2024, the Ministry of Education and Training issued Circular No. 01/2024/TT-BGDĐT on Standards for higher education institutions, which indicates that the proportion of full-time lecturers with doctoral degrees must be no less than 20%, and from 2030, no less than 30% for institutions that do not offer doctoral programs. For institutions offering doctoral programs, the proportion must be no less than 40%, and from 2030, no less than 50%. Among the five surveyed universities in this study, Can Tho University and Dong Thap University offer doctoral programs; An Giang University provides training up to the master's level; and Kien Giang University and Bac Lieu University offer training up to the undergraduate level. Based on the requirements specified in Circular No. 01/2024/TT-BGDĐT, Can Tho University and Dong Thap University must achieve a proportion of at least 40% of full-time PhD lecturers, while the other three universities - An Giang University, Kien Giang University, and Bac Lieu University - must achieve a proportion of at least 20%. Circular No. 02/2022/TT-BGDĐT defines full-time lecturers in relation to opening new academic programs as including both permanent lecturers and those on fixed-term labor contracts of at least 12 months who work full-time at the institution. According to this definition, the term "full-time lecturers" includes not only permanent staff but also lecturers under contracts of 12 months or longer. However, within the scope of this study, only permanent staff were considered. Therefore, the study lacks sufficient data to assess the proportion of doctoral-qualified lecturers in relation to the specified requirements for the surveyed institutions.

Among the five surveyed universities, only Can Tho University has a proportion of PhD lecturers, in relation to the total number of permanent staff, that meets the standard for full-time PhD lecturers, with the highest rate of 42.44%. The other universities fall short of the standards for higher education institutions in this regard.

4.3. Results of calculating TDI for public universities in the Mekong Delta (up to December 31, 2022)

Based on the TDI calculation method by Le (2017), data from Dong Thap University, Can Tho University, Kien Giang University, An Giang University, and Bac Lieu University were collected and computed, showing the following results:

4.3.1. Actual figures as of the end of 2022

Table 2. Statistics on the training level of lecturers

| Institution | Total numbers of lecturers | Category | | | | | | College, intermediate, elementary |
| | | Doctoral | | Master | | Undergraduate | | |
		Number	%	Number	%	Number	%	Number
Dong Thap	320	103	32.19	211	65.94	6	1.88	0
Can Tho	1117	590	52.82	497	44.49	30	2.69	0
Kien Giang	136	14	10.29	109	80.15	13	9.56	0
An Giang	388	94	24.23	281	72.42	13	3.35	0
Bac Lieu	107	8	7.48	94	87.85	5	4.67	0

Table 3. Statistic of lecturer ages (years old)

Institution	Total lecturer number	<20	20≤25	25≤30	30≤35	35≤40	40≤45	45≤50	50≤55	55≤60
Dong Thap	320	0	2	7	17	112	99	46	20	17
Can Tho	1117	0	10	27	102	195	212	120	75	376
Kien Giang	136	0	5	9	47	35	24	9	4	3
An Giang	388	0	0	3	22	108	106	94	32	23
Bac Lieu	107	0	0	1	21	32	29	14	5	5

Table 4. Data on lecturers' performance classification for the 2022-2023 academic year

| Data on lecturer's rating | Total number of classified lecturers | The lecturers who did not completed the tasks | |
		Number	Percentage
Dong Thap University	320	1	0.31
Can Tho University	1.117	0	0.00
Kien Giang University	136	0	0.00
An Giang University	388	2	0.52
Bac Lieu University	107	0	0.00

Table 5. Training career expenditure level for fiscal year 2022

Institution	Total regular expenses (training career) at the time of closing the accounting books on December 31, 2022	Average/ lecturer (million VND)
Dong Thap	159,582,181,228 VND	498.7
Can Tho	641,105,000,000 VND	574
Kien Giang	45,268,711,532 VND	332.9
An Giang	200,559,208,622 VND	516.9
Bac Lieu	22,695,000,000 VND	221.8

4.3.2. Results of calculating the faculty development index

Table 6. Maximum and minimum values for calculating TDI index

Criteria	Max value	Min value
Percentage of lecturers meeting and exceeding standards (%)	100	65
Duration of training time (years)	22	16
Financial expenditure/lecturer (million VNĐ)	800	200
Lecturer's age (years)	60	21
Percentage of lecturers rated as satisfactory (%)	100	0

The formula for Ii as follow

$$Ii(k) = \frac{Real\ value\ (k) - Min\ value\ (k)}{Max\ value\ (k) - Min\ value\ (k)}$$

Results of calculating component indexes as follow:

4.3.3. Training index (T)

a. T1: Percentage of lecturers meet and exceed training standards

- Dong Thap University: 98.12%
- Can Tho University: 96.35%
- Kien Giang University: 90.44%
- An Giang University: 96.65%
- Bac Lieu University: 95.33%

b. Average years of training (T2)

For undergraduate is 16 years, master is 18 years and doctoral is 22 years.

- Dong Thap University: {(103x22) + (211x18) + (6x16)}: 320 = 19.25
- Can Tho University: {(90x22) + (497x18) + (30x16)}: 1117 = 20.06
- Kien Giang University: {(14x22) + (109x18) + (13x16)}: 136 = 18.22
- An Giang University: 96{(94x22) + (281x18) + (13x16)}: 388 = 18.90
- Bac Lieu University:: {(8x22) + (94x18) + (5x16)}: 107 = 18.21

c. T Index

- Dong Thap University
  + I(T1) = (98,12 – 65) : (100-65) = 0.946
  + I(T2) = (19,25 – 16) : (22 - 16) = 0.542
  + I(T) = (2/3 x0,946) + (1/3 x0,542) = 0.811
- Can Tho University
  + I(T1) = (96,35– 65) : (100-65) = 0.901
  + I(T2) = (20,06– 16) : (22 - 16) = 0.677
  + I(T) = (2/3 x0,901) + (1/3 x0,677) = 0.826
- Kien Giang University
  + I(T1) = (90,44– 65) : (100-65) = 0.727
  + I(T2) = (18,22– 16) : (22 - 16) = 0.370
  + I(T) = (2/3 x 0,727) + (1/3 x0,370) = 0.608
- An Giang University
  + I(T1) = (96,65– 65) : (100-65) = 0.904
  + I(T2) = (18,90– 16) : (22 - 16) = 0.483
  + I(T) = (2/3 x 0,904) + (1/3 x0,483) = 0.764
- Bac Lieu University
  + I(T1) = (95,33– 65) : (100-65) = 0.867

+ I(T2) = (18,21– 16) : (22 - 16) = 0.368
+ I(T) = (2/3 x 0,867) + (1/3 x0,368) = 0.701

4.3.4. Financial expenditure index F

F = lg (Regular financial expenditure/lecturer)
General index:
lg(max) = lg (800) = 2.903
lg(min) = lg(200) = 2.301
It displays:
- Dong Thap University: lg(498.7) = 2.698
I(F) = (2.698 – 2.301) : (2.903- 2.301) = 0.659
- Can Tho University: lg(574.0) = 2.759
I(F) = (2.759 – 2.301) : (2.903- 2.301) = 0.761
- Kien Giang University: lg(322.9) = 2.509
I(F) = (2.509 – 2.301) : (2.903- 2.301) = 0.346
- An Giang University: lg(516.9) = 2.713
I(F) = (2.713 – 2.301) : (2.903- 2.301) = 0.684
- Bac Lieu University: lg(221.8) = 2.346
I(F) = (2.346 – 2.301) : (2.903- 2.301) = 0.075

4.3.5. Age index

- Dong Thap University
  a. {(2x22.5) + (7x27.5) + (17x32.5) + (112x37.5) + (99x42.5) + (46x47.5) + (20x52.5) + (17x57.5)}: 320 = 41.9
  b. Ia = (41.9 – 21) : (60 – 21) = 0.536
- Can Tho University
  a. {(10x22.5) + (27x27.5) + (102x32.5) + (195x37.5) + (212x42.5) + (120x47.5) + (75x52.5) + (376x57.5)} : 1170 = 46.4
  b. Ia = (46.4 -21) : (60 -21) = 0.651
- Kien Giang University
  a. {(5x22.5) + (9x27.5) + (47x32.5) + (35x37.5) + (24x42.5) + (9x47.5) + (4x52.5) + (3x57.5)} : 136 = 37.0
  b. Ia = (37 – 21) : (60 -21) = 0.410
- An Giang University
  a. {(3x27.5) + (22x32.5) + (108x37.5) + (106x42.5) + (94x47.5) + (32x52.5) + (23x57.5)}: 388 = 43.4
  b. Ia = (43.4 – 21) : (60 -21) = 0.574
- Bac Lieu University
  a. {(1x27.5) + (21x32.5) + (32x37.5) + (29x42.5) + (14x47.5) + (5x52.5) + (5x57.5)} : 107 = 40.7
  b. Ia = (40.7 – 21) : (60 – 21) = 0.505

4.3.6. Work index

- Dong Thap University: $(99.69 - 0.0) : (100 - 0.0) = 0.997$

- Can Tho University: $(100 - 0.0) : (100 - 0.0) = 1.00$

- Kien Giang University: $(100 - 0.0) : (100 - 0.0) = 1.00$

- An Giang University: $(99.48 - 0.0) : (100 - 0.0) = 0.995$

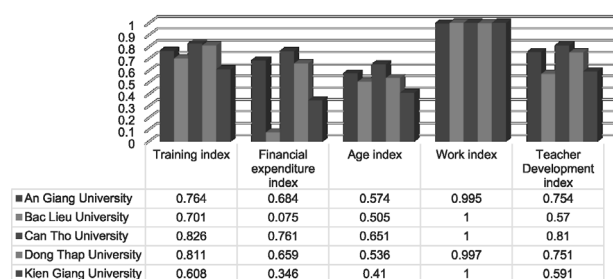- Bac Lieu University: $(100 - 0.0) : (100 - 0.0) = 1.00$

The TDI Index: $I = (I_t + I_f + I_a + I_q) : 4$

Table 7. TDI Index of public universities in the Mekong Delta in 2022

No	Institution	I_t	I_f	I_a	I_q	I
1	Dong Thap University	0.811	0.659	0.536	0.997	0.751
2	Can Tho University	0.826	0.761	0.651	1.000	0.810
3	Kien Giang University	0.608	0.346	0.410	1.000	0.591
4	An Giang University	0.764	0.684	0.574	0.995	0.754
5	Bac Lieu University	0.701	0.075	0.505	1.000	0.570

4.4. Composite development index

Based on the TDI calculation method by Le (2017) and the data collected from the five surveyed universities, the teacher development index (TDI) for these institutions as of December 31, 2022, is presented in Figure 4.

	Training index	Financial expenditure index	Age index	Work index	Teacher Development index
■ An Giang University	0.764	0.684	0.574	0.995	0.754
■ Bac Lieu University	0.701	0.075	0.505	1	0.57
■ Can Tho University	0.826	0.761	0.651	1	0.81
■ Dong Thap University	0.811	0.659	0.536	0.997	0.751
■ Kien Giang University	0.608	0.346	0.41	1	0.591

Figure 4. TDI Indes of public universities in The Mekong Delta in 2022

The results show that the TDI scores of the universities, ranked from highest to lowest, are as follows: Can Tho University (0.810), An Giang University (0.754), Dong Thap University (0.751), Kien Giang University (0.591), and Bac Lieu University (0.570). A detailed analysis of individual component indices reveals:

- Can Tho University has consistently high scores across all components, with the highest figures among the five universities. Compared to other universities in the region, Can Tho University, with a 58-year history, is recognized as a key institution for undergraduate and postgraduate education by the government in the Mekong Delta. Over its development, the faculty and staff have received substantial investment, reflected in the highest average recurrent expenditure per lecturer for training and education, amounting to 574 million VND. The university also boasts the highest proportion of faculty with doctoral degrees and academic titles of professor or associate professor in the region. The total staff and faculty number are 1,526 people, including 17 professors, 159 associate professors, 417 PhDs, 623 master's degree holders, 187 bachelor's degree holders, 10 college graduates, and 30 intermediate diploma holders (source: survey data).

- Kien Giang University has the lowest scores in the training index and the average age index, which pulled down its overall TDI. With a 10-year history, Kien Giang University is relatively new. The total staff and faculty number are 261, including 2 associate professors, 26 PhDs, 168 master's degree holders, and 63 bachelor's degree holders (source: survey data). The average recurrent expenditure per lecturer for training and education at the university is 332.9 million VND.

- Bac Lieu University is a provincial university under the governance of the Bac Lieu People's Committee, with an 18-year history of development. The university has a total of 214 staff members, including 23 PhDs, 136 master's degree holders, 41 bachelor's degree holders, one college graduate, and three with intermediate diplomas (source: survey data). The average recurrent expenditure for training and education at the university is 221.8 million VND per lecturer, the lowest among the universities surveyed, reflecting the financial difficulties faced by a local university.

- An Giang University and Dong Thap University have similar TDI scores. An Giang University, with a 25-year history, has the second-highest average recurrent expenditure for training and education after Can Tho University, amounting to 516.9 million VND per lecturer. The university has a total of 672 staff members, including 6 associate professors, 90 PhDs, 387 master's degree holders, 175 bachelor's degree holders, four college graduates, and nine with intermediate diplomas (source: survey data).

Dong Thap University has a 21-year history and a higher proportion of lecturers with doctoral degrees (32.19%) compared to An Giang University (24.23%). However, its average recurrent expenditure for training and education in 2022 was 498.7 million VND per lecturer, lower than that of An Giang University. Dong Thap University has 541 staff members, of which 500 are faculty members and 41 are staff. The qualifications of the faculty include 13 associate professors, 97 PhDs, 322 master's degree holders, 65 bachelor's degree holders, and three with intermediate diplomas (source: survey data). The overall TDI score of Dong Thap University is 0.751, slightly lower than An Giang University's 0.754. Dong Thap University scores higher in the training index but lower in other indices, placing it one rank below An Giang University.

The above analysis indicates that universities with higher average recurrent expenditure for training and education per lecturer and a more experienced faculty tend to exhibit stronger faculty development. According to the current Higher Education Law, the minimum qualification standard for university lecturers is a master's degree. Achieving a doctoral degree or the academic titles of professor or associate professor requires substantial time and effort, including further education and the accumulation of seniority, teaching performance, and research achievements.

From these results, an important lesson can be drawn: To develop core human resources, particularly the faculty, universities need to establish strategic orientations, planning, and clear policies for faculty training and development. This includes ensuring financial resources, developing an age pyramid that aligns with the university's goals, and continually improving the quality of faculty work. Focusing on only a subset of these four factors would lead to an imbalance. Addressing all these factors is critical to effective human resource management in universities.

5. Conclusion

Based on the findings of this study, universities and higher education institutions can apply the calculation of their own faculty development index. This will allow them to strategically plan their human resources and systematically develop their faculty, gradually increasing the development index in a comprehensive and sustainable manner.

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