# TRENDS IN EDUCATIONAL BACKGROUND COMPOSITION IN JAPANESE PUBLIC SCHOOL TEACHER RECRUITMENT EXAMINATIONS: APPLICANTS AND NEWLY HIRED TEACHERS, 2007–2025

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**Abstract** - This study examines long-term changes in the educational background composition of applicants and newly hired teachers in Japan's public school teacher recruitment examinations from 2007 to 2025. The analysis covers elementary, lower secondary, and upper secondary schools, as well as the combined total across these school levels. Educational background was classified into four categories: national teacher-training universities/faculties, general universities/faculties, junior colleges and similar institutions, and graduate schools. For each year, the proportion of each category was calculated by dividing the number of individuals in that category by the total number of applicants or newly hired teachers. Annual trends were estimated using quasi-binomial logistic regression. The results show that, in the combined total, the share of general university/faculty graduates increased from 65.5% to 74.0% among applicants and from 54.2% to 66.3% among newly hired teachers; these increases remained significant after adjustment for multiple comparisons. In contrast, the shares of national teacher-training university/faculty graduates and graduate school graduates declined. These findings suggest that the educational background composition of teacher recruitment in Japan has shifted toward a greater presence of general university/faculty graduates.

**Keywords** - Teacher Recruitment Examinations, Educational Background, Newly Hired Teachers, Japan

## I. INTRODUCTION

In Japan, teacher shortages and the declining number of applicants for public school teacher recruitment examinations have become major issues in education policy. The Ministry of Education, Culture, Sports, Science and Technology annually surveys public school teacher recruitment examinations, including the number of applicants, the number of newly hired teachers, and the backgrounds of both groups [1]. Recent studies have reported a decline in applicant-to-position ratios, particularly in elementary schools, and have pointed to increasing difficulty in securing regular teachers [2]. Teacher shortages in Japan have also been discussed not as a temporary phenomenon, but as a recurring issue associated with demographic change, economic conditions, and the declining attractiveness of teachers' salaries and working conditions [3].

To understand changes in teacher supply, it is necessary to examine not only the number of applicants and newly hired teachers, but also the educational backgrounds of those who apply for and those who are ultimately hired through public school teacher recruitment examinations. In Japan, teacher preparation is provided by a range of institutions, including national teacher-training universities/faculties, general universities/faculties, junior colleges, and graduate schools. A presentation delivered at an international seminar organized by the Ministry of Education, Culture, Sports, Science and Technology also indicates that teacher preparation in Japan is conducted both in general universities and in teacher-training universities, each with its own characteristics [4]. While this system may help attract diverse candidates into the teaching profession, it also poses challenges for quality assurance in teacher preparation programs [5].

### A. Research Gap

Previous studies have examined teacher shortages, declining applicant-to-position ratios, teachers' working conditions, and the decreasing attractiveness of the teaching profession [2], [3], [6]. The teacher preparation system has also been discussed in relation to quality assurance under Japan's open system of teacher education [5]. However, to the best of our knowledge, no study has systematically examined long-term changes in the educational background composition of applicants and newly hired teachers in public school teacher recruitment examinations. In particular, it remains unclear whether the share of graduates of general universities/faculties has increased, how the share of graduates of national teacher-training universities/faculties has changed, and whether these trends differ by school level.

### B. Research Purpose

The purpose of this study is to examine long-term changes in the educational background composition of applicants and newly hired teachers using data from public school teacher recruitment examinations from FY2007 to FY2025. Specifically, this study analyzes annual trends inthe proportions of each of the four educational background categories: national teacher-training universities/faculties, general universities/faculties, junior colleges and similar institutions, and graduate schools. The analysis covers elementary, lower secondary, and upper secondary schools, as well

as the combined total across these school levels.

### C. Research Questions

RQ1. How did the educational background composition of applicants for public school teacher recruitment examinations change from FY2007 to FY2025?
RQ2. How did the educational background composition of newly hired teachers change during the same period?
RQ3. Do these trends differ across elementary, lower secondary, and upper secondary schools?

## II. DATA AND METHODS

### A. Data

This study used annual aggregate data from FY2007 to FY2025 based on the Implementation Status of Public School Teacher Recruitment Selection Examinations published by the Ministry of Education, Culture, Sports, Science and Technology [1]. The analysis focused on the breakdown of applicants and newly hired teachers by educational background for each fiscal year.

The analysis covered elementary, lower secondary, and upper secondary schools. In addition, the combined total across these three school levels was analyzed.

Educational background was classified into four categories, following the categories used in the published data: national teacher-training universities/faculties, general universities/faculties, junior colleges and similar institutions, and graduate schools.

### B. Measures

The dependent variable in this study was the proportion of each educational background category among all applicants or newly hired teachers. Specifically, for each fiscal year, school level, and target group, the proportion was calculated by dividing the number of individuals in a given educational background category by the total number of applicants or newly hired teachers in the corresponding group.

For the analysis of applicants, the denominator was the total number of applicants. For the analysis of newly hired teachers, the denominator was the total number of newly hired teachers. Fiscal year was treated as a continuous variable and centered at FY2007 by subtracting 2007 from each fiscal year. Thus, the regression coefficient represents the annual change after FY2007.

### C. Statistical Analysis

First, the proportion of each educational background category was calculated for FY2007 and FY2025, and the overall change during the study period was expressed in percentage points. Next, quasi-binomial logistic regression was conducted to estimate annual trends in the proportion of each educational background category.

In each model, the number of individuals in a given educational background category was treated as the number of successes, and the number of individuals not in that category was treated as the number of failures. Fiscal year was included as the explanatory variable. A quasi-binomial distribution was used to account for the possibility of greater variance in the annual aggregate data than would be expected under a standard binomial distribution[7].

The results are reported as odds ratios per year, 95% confidence intervals, and p values. Because multiple tests were conducted across school levels, target groups, and educational background categories, p values were adjusted using the Benjamini–Hochberg method[8], and the adjusted values are reported as q values. The adjustment was applied to a single family of 32 tests, consisting of four school-level categories—elementary schools, lower secondary schools, upper secondary schools, and the combined total across these school levels—two target groups, applicants and newly hired teachers, and four educational background categories. A trend was interpreted as increasing when the q value was less than .05 and the odds ratio per year was greater than 1. A trend was interpreted as decreasing when the q value was less than .05 and the odds ratio per year was less than 1.

## III. RESULTS

### A. Descriptive Changes in Educational Background Composition

Table 1 shows the educational background composition of applicants and newly hired teachers in FY2007 and FY2025. Among applicants in the combined total across elementary, lower secondary, and upper secondary schools, the share of graduates of general universities/faculties increased from 65.5% to 74.0%. In contrast, the share of graduates of national teacher-training universities/faculties decreased from 20.8% to 17.0%, that of graduates of junior colleges and similar institutions decreased from 4.38% to 1.85%, and that of graduate school graduates decreased from 9.32% to 7.16%.

A similar pattern was observed among newly hired teachers. The share of graduates of general universities/faculties increased from 54.2% to 66.3%. By contrast, the share of graduates of national teacher-training universities/faculties decreased from 34.1% to 25.0%, that of graduates of junior colleges and similar institutions decreased from 2.27% to 1.72%, and that of graduate school graduates decreased from 9.43% to 7.00%.

Figures 1 and 2 show annual trends in the shares of

each educational background category in the combined total across the three school levels. Among applicants, the share of graduates of general universities/faculties increased over the study period, whereas the shares of graduates of national teacher-training universities/faculties and junior colleges and similar institutions decreased. Among newly hired teachers, the share of graduates of general universities/faculties also increased, while the share of graduates of national teacher-training universities/faculties decreased.

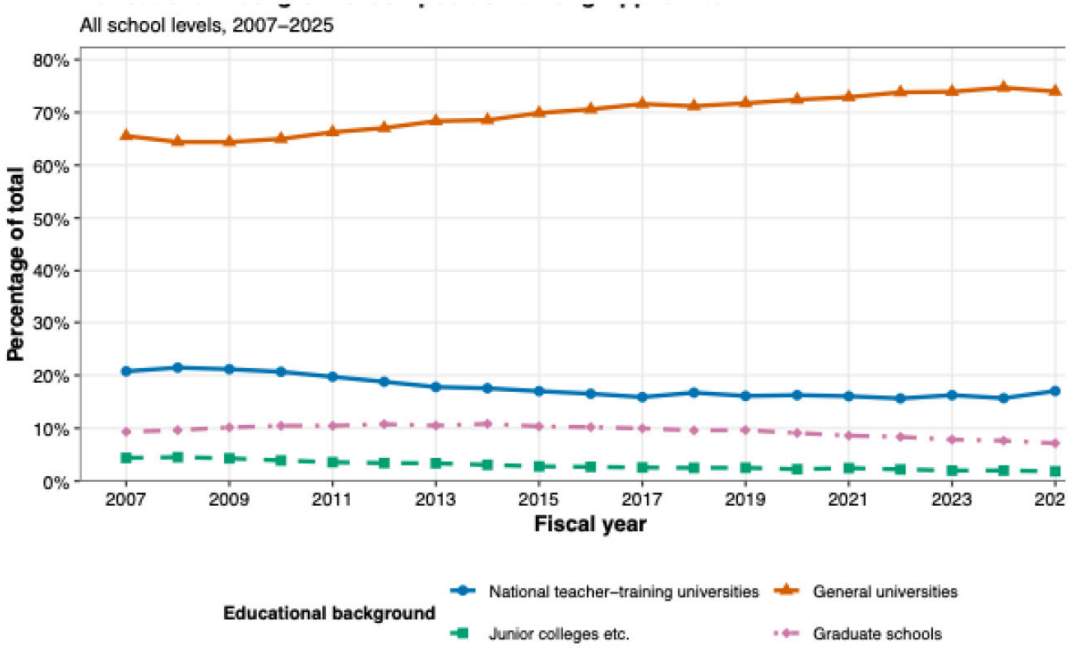



**Fig. 1. Annual trends in educational background com-position among applicants, FY2007–FY2025**

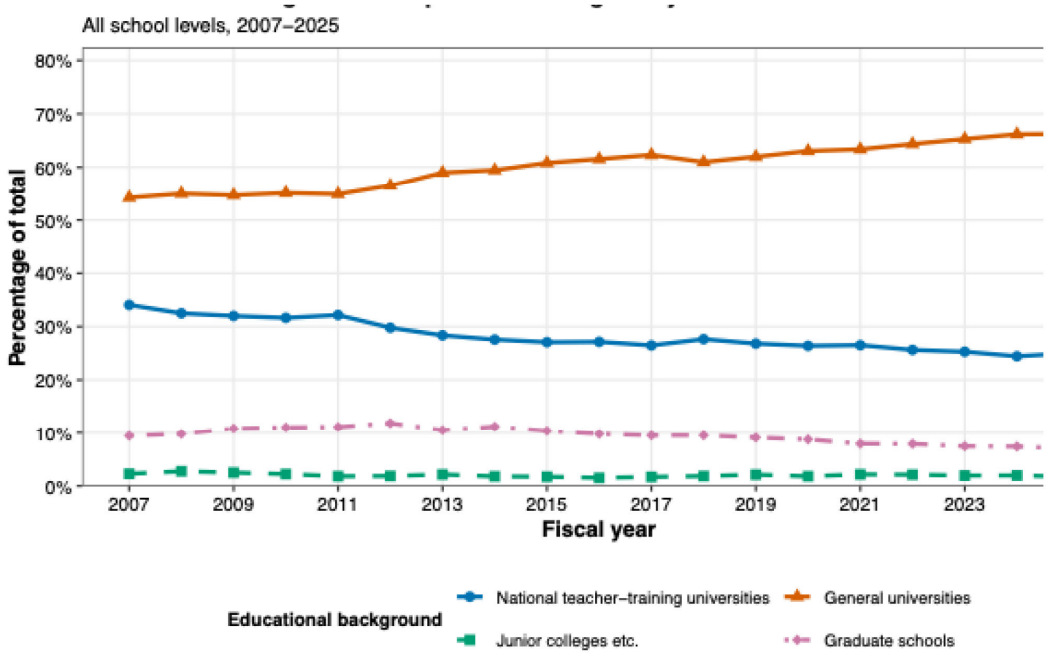



**Fig. 2. Annual trends in educational background compositionamong newly hired teachers, FY2007–FY2025**

| School level | Group | Educational background | 2007 Count | 2007 (%) | 2025 Count | 2025 (%) | Change (pp) |
|---|---|---|---|---|---|---|---|
| Elementary | Applicants | National teacher-training university/faculty | 17,734 | 35.80 | 7,920 | 23.00 | -12.80 |
| | | General university/faculty | 25,389 | 51.20 | 24,156 | 70.20 | 18.90 |
| | | Junior college, etc. | 3,909 | 7.89 | 1,025 | 2.98 | -4.91 |
| | | Graduate school | 2,527 | 5.10 | 1,333 | 3.87 | -1.23 |
| | Newly hired teachers | National teacher-training university/faculty | 4,563 | 43.50 | 4,892 | 28.60 | -14.90 |
| | | General university/faculty | 5,024 | 47.90 | 11,089 | 64.90 | 17.00 |
| | | Junior college, etc. | 330 | 3.15 | 397 | 2.33 | -0.82 |
| | | Graduate school | 572 | 5.45 | 700 | 4.10 | -1.35 |
| Lower secondary | Applicants | National teacher-training university/faculty | 8,089 | 14.30 | 5,150 | 14.10 | -0.27 |
| | | General university/faculty | 40,813 | 72.30 | 28,428 | 77.60 | 5.32 |
| | | Junior college, etc. | 2,148 | 3.81 | 574 | 1.57 | -2.24 |
| | | Graduate school | 5,391 | 9.55 | 2,469 | 6.74 | -2.81 |
| | Newly hired teachers | National teacher-training university/faculty | 1,432 | 25.10 | 2,386 | 23.50 | -1.63 |
| | | General university/faculty | 3,541 | 62.00 | 6,896 | 67.80 | 5.77 |
| | | Junior college, etc. | 85 | 1.49 | 131 | 1.29 | -0.20 |
| | | Graduate school | 649 | 11.40 | 755 | 7.42 | -3.95 |
| Upper secondary | Applicants | National teacher-training university/faculty | 3,120 | 9.35 | 2,391 | 12.10 | 2.78 |
| | | General university/faculty | 25,117 | 75.30 | 14,542 | 73.80 | -1.50 |
| | | Junior college, etc. | 53 | 0.16 | 79 | 0.40 | 0.24 |
| | | Graduate school | 5,066 | 15.20 | 2,693 | 13.70 | -1.52 |
| | Newly hired teachers | National teacher-training university/faculty | 316 | 13.60 | 824 | 16.00 | 2.41 |
| | | General university/faculty | 1,479 | 63.60 | 3,486 | 67.70 | 4.11 |
| | | Junior college, etc. | 6 | 0.26 | 30 | 0.58 | 0.32 |
| | | Graduate school | 526 | 22.60 | 812 | 15.80 | -6.84 |
| Combined | Applicants | National teacher-training university/faculty | 28,943 | 20.80 | 15,461 | 17.00 | -3.73 |
| | | General university/faculty | 91,319 | 65.50 | 67,126 | 74.00 | 8.43 |
| | | Junior college, etc. | 6,110 | 4.38 | 1,678 | 1.85 | -2.54 |
| | | Graduate school | 12,984 | 9.32 | 6,495 | 7.16 | -2.16 |
| | Newly hired teachers | National teacher-training university/faculty | 6,311 | 34.10 | 8,102 | 25.00 | -9.06 |
| | | General university/faculty | 10,044 | 54.20 | 21,471 | 66.30 | 12.00 |
| | | Junior college, etc. | 421 | 2.27 | 558 | 1.72 | -0.55 |
| | | Graduate school | 1,747 | 9.43 | 2,267 | 7.00 | -2.43 |

**Table 1. Educational background composition of applicants and newly hired teachers in FY2007 and FY2025**

By school level, the changes were especially pronounced in elementary schools. Among elementary school applicants, the share of graduates of general universities/faculties increased from 51.2% to 70.2%, while the share of graduates of national teacher-training universities/faculties decreased from 35.8% to 23.0%. Among newly hired elementary school teachers, the share of graduates of general universities/faculties increased from 47.9% to 64.9%, while the share of graduates of national teacher-training universities/faculties decreased from 43.5% to 28.6%.

In lower secondary schools, the share of graduates of general universities/faculties increased among both applicants and newly hired teachers. In upper secondary schools, however, the share of graduates of national teacher-training universities/faculties increased among both applicants and newly hired teachers, showing a pattern different from those observed in elementary and lower secondary schools.

## B. Annual Trends by Educational Background Category

Table 2 presents the annual trends in the shares of each educational background category estimated using quasi-binomial logistic regression.

Among applicants in the combined total across the three school levels, the share of graduates of general universities/faculties showed a significant increasing trend (OR = 1.030, 95% CI [1.030, 1.030], q < .001). In contrast, significant decreasing trends were observed for graduates of national teacher-training universities/faculties (OR = 0.977, 95% CI [0.972, 0.983], q < .001), graduates of junior colleges and similar institutions (OR = 0.949, 95% CI [0.945, 0.954], q < .001), and graduate school graduates (OR = 0.984, 95% CI [0.976, 0.992], q = .001).

Among newly hired teachers in the combined total, the share of graduates of general universities/faculties also increased significantly (OR = 1.030, 95% CI [1.030, 1.030], q < .001). In contrast, the shares of graduates of national teacher-training universities/faculties (OR = 0.977, 95% CI [0.973, 0.981], q < .001) and graduate school graduates (OR = 0.973, 95% CI [0.965, 0.982], q < .001) decreased significantly. The share of graduates of junior colleges and similar institutions decreased from 2.27% to 1.72%, but the annual trend was not statistically significant after adjustment for multiple comparisons (OR = 0.989, 95% CI [0.977, 1.00], q = .092).

By school level, the increase in graduates of general universities/faculties and the decrease in graduates of national teacher-training universities/faculties were particularly clear in elementary schools. Among elementary school applicants, the share of graduates of general universities/faculties increased significantly (OR = 1.060, 95% CI [1.050, 1.060], q < .001), while the share of graduates of national teacher-training universities/faculties decreased significantly (OR =

0.955, 95% CI [0.947, 0.963], q < .001). Among newly hired elementary school teachers, the share of graduates of general universities/faculties increased significantly (OR = 1.040, 95% CI [1.040, 1.050], q < .001), while the share of graduates of national teacher-training universities/faculties decreased significantly (OR = 0.963, 95% CI [0.958, 0.967], q < .001).

| School level | Group | Educational background | OR per year | 95% CI | q-value | Direction |
|---|---|---|---|---|---|---|
| Elementary | Applicants | National teacher-training university/faculty | 0.955 | [0.947, 0.963] | < .001 | Decrease |
| | | General university/faculty | 1.060 | [1.050, 1.060] | < .001 | Increase |
| | | Junior college, etc. | 0.944 | [0.940, 0.948] | < .001 | Decrease |
| | | Graduate school | 0.978 | [0.967, 0.988] | < .001 | Decrease |
| | Newly hired teachers | National teacher-training university/faculty | 0.963 | [0.958, 0.967] | < .001 | Decrease |
| | | General university/faculty | 1.040 | [1.040, 1.050] | < .001 | Increase |
| | | Junior college, etc. | 0.983 | [0.972, 0.994] | < .01 | Decrease |
| | | Graduate school | 0.974 | [0.965, 0.983] | < .001 | Decrease |
| Lower secondary | Applicants | National teacher-training university/faculty | 0.990 | [0.986, 0.994] | < .001 | Decrease |
| | | General university/faculty | 1.020 | [1.020, 1.020] | < .001 | Increase |
| | | Junior college, etc. | 0.947 | [0.942, 0.953] | < .001 | Decrease |
| | | Graduate school | 0.982 | [0.974, 0.990] | < .001 | Decrease |
| | Newly hired teachers | National teacher-training university/faculty | 0.991 | [0.986, 0.995] | < .001 | Decrease |
| | | General university/faculty | 1.020 | [1.010, 1.020] | < .001 | Increase |
| | | Junior college, etc. | 1.000 | [0.986, 1.010] | 0.952 | - |
| | | Graduate school | 0.974 | [0.967, 0.981] | < .001 | Decrease |
| Upper secondary | Applicants | National teacher-training university/faculty | 1.010 | [1.010, 1.020] | < .001 | Increase |
| | | General university/faculty | 0.998 | [0.994, 1.000] | 0.502 | - |
| | | Junior college, etc. | 1.010 | [0.977, 1.040] | 0.581 | - |
| | | Graduate school | 0.993 | [0.986, 1.000] | 0.071 | - |
| | Newly hired teachers | National teacher-training university/faculty | 1.010 | [1.010, 1.020] | < .001 | Increase |
| | | General university/faculty | 1.010 | [1.010, 1.020] | < .001 | Increase |
| | | Junior college, etc. | 1.040 | [1.000, 1.070] | < .05 | Increase |
| | | Graduate school | 0.973 | [0.968, 0.980] | < .001 | Decrease |
| Combined | Applicants | National teacher-training university/faculty | 0.977 | [0.972, 0.983] | < .001 | Decrease |
| | | General university/faculty | 1.030 | [1.030, 1.030] | < .001 | Increase |
| | | Junior college, etc. | 0.949 | [0.945, 0.954] | < .001 | Decrease |
| | | Graduate school | 0.984 | [0.976, 0.992] | < .001 | Decrease |
| | Newly hired teachers | National teacher-training university/faculty | 0.977 | [0.973, 0.981] | < .001 | Decrease |
| | | General university/faculty | 1.030 | [1.030, 1.030] | < .001 | Increase |
| | | Junior college, etc. | 0.989 | [0.977, 1.000] | 0.092 | - |
| | | Graduate school | 0.973 | [0.965, 0.982] | < .001 | Decrease |

**Table 2. Annual trends in educational background composition estimated by quasi-binomial logistic regression**

In lower secondary schools, the share of graduates of general universities/faculties increased significantly among both applicants and newly hired teachers. In contrast, the share of graduate school graduates decreased significantly in both groups. For graduates of junior colleges and similar institutions, a significant decreasing trend was observed among applicants, whereas no significant trend was found among newly hired teachers.

In upper secondary schools, unlike in elementary and lower secondary schools, the share of graduates of national teacher-training universities/faculties increased significantly among both applicants and newly hired teachers. For graduates of general universities/faculties, a significant increase was observed among newly hired teachers, whereas no significant trend was found among applicants. The share of graduate school graduates decreased significantly among newly hired teachers.

Overall, from FY2007 to FY2025, the share of graduates of general universities/faculties tended to increase among both applicants and newly hired teachers. This pattern was especially clear in the combined total across the three school levels and in elementary schools. In contrast, the shares of graduates of national teacher-training universities/faculties and graduate school graduates tended to decrease in many categories.

## IV. DISCUSSION

This study analyzed changes in the educational background composition of applicants and newly hired teachers using data from public school teacher recruitment examinations from FY2007 to FY2025. In the combined total across elementary, lower secondary, and upper secondary schools, the share of graduates of general universities/faculties increased among both applicants and newly hired teachers, whereas the shares of graduates of national teacher-training universities/faculties and graduate school graduates declined. This pattern was particularly clear in elementary schools, where the increase in graduates of general universities/faculties and the decrease in graduates of national teacher-training universities/faculties were especially pronounced.

These findings suggest that the structure of teacher supply in Japanappears to be shifting toward one that includes a larger share of graduates of general universities/faculties, rather than relying primarily on graduates of national teacher-training universities/faculties. However, this study is based on a time-series analysis of aggregate data and does not directly examine the factors that produced these changes.

The findings have several implications for teacher education policy. Given that graduates of general universities/faculties now account for a large share of both applicants and newly hired teachers, teacher education policy cannot focus only on national teacher-training universities/faculties. It is necessary to strengthen mechanisms that support the development of professional competence required of teachers, including quality assurance in teacher preparation programs at general universities, practical learning opportunities connected to school settings, and induction training after recruitment. As teacher preparation programs become more widely distributed across diverse universities, ensuring the quality of curriculum content and practicum experiences across institutions becomes increasingly important.

At the same time, the declining share of graduates of national teacher-training universities/faculties should also be taken seriously. National teacher-training universities/faculties have played a specialized role in teacher preparation closely connected to school settings. If their relative share is declining, it will be necessary to strengthen career guidance and outreach aimed at prospective teachers before and during university enrollment, and support for continuing in teacher preparation programs during university. In this sense, policies should be pursued simultaneously on two fronts: strengthening teacher preparation programs in general universities/faculties and re-examining the role of national teacher-training universities/faculties.

The school-level results also showed that the structure of teacher supply is not uniform across school levels. In upper secondary schools, unlike in elementary and lower secondary schools, the share of graduates of national teacher-training universities/faculties increased among both applicants and newly hired teachers. However, this study did not analyze differences by subject area, region, or recruitment category. Therefore, the reasons for the distinctive pattern observed in upper secondary schools remain a topic for future investigation.

This study has several limitations. First, because it relies on published aggregate data, it does not analyze individual-level career choices or recruitment processes. Second, it does not account for recruitment policies at the prefectural or municipal level, regional differences, or subject-specific demand for teachers. Third, the analysis identifies annual trends but does not test the causal effects of policy changes or broader social factors. Future research should combine data by region, school level, and subject area to examine how changes in educational background composition are related to institutional and social conditions.

## V.CONCLUSIONS AND FUTURE DIRECTIONS

This study analyzed changes in the educational background composition of applicants and newly hired teachers using data from public school teacher recruitment examinations from FY2007 to FY2025. In the combined total across elementary, lower secondary, and upper secondary schools, the share of graduates of general universities/faculties increased among both applicants and newly hired teachers, whereas the shares of graduates of national teacher-training universities/faculties and graduate school graduates declined. This pattern was particularly clear in elementary schools, where the increase in graduates of general universities/faculties and the decrease in graduates of national teacher-training universities/faculties were especially pronounced.

These findings indicate that the structure of teacher supply in Japan has shifted toward one that includes a larger share of graduates of general universities/faculties, in addition to graduates of national teacher-training universities/faculties. Therefore, future teacher education policy should place greater emphasis on quality assurance in teacher preparation programs at general universities and on expanding practical learning opportunities connected to school settings. At the same time, national teacher-training universities/faculties should strengthen outreach and support that help students form and maintain career intentions toward teaching.

This study was based on nationwide aggregate data and did not examine prefectural differences or the effects of local recruitment policies. It also did not directly identify the institutional or social factors that produced the observed changes in educational background composition. Future research should analyze regional differences using prefecture-level data and examine how educational background composition changed before and after the introduction of policies related to teacher recruitment and teacher preparation programs. Such analyses would provide a more detailed understanding of changes in the structure of human resource supply in teacher recruitment.

## REFERENCES

[1] Ministry of Education, Culture, Sports, Science and Technology(MEXT), “Implementation Status of Public School Teacher Recruitment Selection Examinations,” Ministry of Education, Culture, Sports, Science and Technology. [Online].

Available: https://www.mext.go.jp/a_menu/shotou/senkou/1243159.htm

[2] H. Yamasaki, "Japan's Teacher Shortage at the Beginning of the 21st Century: Declining Competition in Teacher Recruitment Examinations and a Shortage of Regular and Non-Regular Teachers," Educational Studies in Japan, vol. 19, pp. 5–16, 2025. doi: 10.7571/esjkyoiku.19.5

[3] M. Maeda, "Recurring Teacher Shortages: A Historical Analysis of Education Policy in Japan," Educational Studies in Japan, vol. 19, pp. 41–51, 2025. doi: 10.7571/esjkyoiku.19.41

[4] Ministry of Education, Culture, Sports, Science and Technology (MEXT), Recent Teacher Policy in Japan, presentation material by K. Akita for the OECD/Japan Seminar, Oct. 13, 2024. [Online]. Available: https://www.mext.go.jp/content/20241206-mxt_kokusai-000038059_3.pdf

[5] Y. Iwata, "On 'Japanese Style' Teacher Education Reform: Considering Issues of Quality Development under an 'Open System'," Educational Studies in Japan, vol. 9, pp. 81–97, 2015. doi: 10.7571/esjkyoiku.9.81

[6] M. Maeda, "Is Teacher Recruitment Too Late? Timeline of Job Search Activities and Choice of Teaching Career in Japan," CSRDA Discussion Paper Series, no. 69, pp. 1–21, 2023. [Online]. Available: https://csrda.iss.u-tokyo.ac.jp/international/dp/No.69.pdf

[7] R. W. M. Wedderburn, "Quasi-Likelihood Functions, Generalized Linear Models, and the Gauss–Newton Method," Biometrika, vol. 61, no. 3, pp. 439–447, 1974. doi: 10.1093/biomet/61.3.439

[8] Y. Benjamini and Y. Hochberg, "Controlling the False Discovery Rate: A Practical and Powerful Approach to Multiple Testing," Journal of the Royal Statistical Society: Series B, vol. 57, no. 1, pp. 289–300, 1995. doi: 10.1111/j.2517-6161.1995.tb02031.x

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