Educational Studies in Japan: International Yearbook
No. 18, March, 2024. pp. 119–129

Is Japan's Early Graduation System for Gifted and Talented Undergraduates Socially Equitable?

Ryuya Fujii*

This study aims to clarify whether the early graduation system in Japan is socially equitable. Specifically, it ascertains whether socioeconomic, geographical, and gender disparities exist in the distribution of early graduation systems, specifically the system that allows gifted and talented students to graduate university in three or three and a half years.

Using an original, independently collected dataset, this study examines the association between the presence or absence of an early graduation system and social bias. The results show no association between the presence or absence of an early graduation system and geographical biases. Gender bias was also not associated with the presence or absence of an early graduation system after controlling for variables such as student demands and faculty system variables. However, there was an association between early graduation systems and socioeconomic bias after controlling for student demand and faculty system variables. Therefore, there is a socioeconomic bias in accessing gifted education at the university level in Japan.

Keywords: Gifted and talented education, social equity, early graduation system, university

1. Introduction

Japan offers an early graduation system allows students to graduate from a four-year university in three or three and a half years[1]. This system is the type of acceleration highlighted by Southern and Jones (2015) and is therefore a kind of gifted and talented education. This study aims to ascertain whether socioeconomic, geographical, and gender disparities exist in the distribution of early graduation systems in Japan.

Internationally, scholars generally agree that gifted education is not socially equitable

* Graduate School of Education, Tohoku University
e-mail: ryuya.fujii.s3@dc.tohoku.ac.jp

(Hodges et al., 2022). For example, socioeconomic (Hamilton et al., 2018; Plucker & Harris 2015), geographical (Howley et al, 2009), and racial (Goings & Ford, 2018) disparities have been shown to exist in gifted education. Therefore, the question of how to make gifted education socially equitable is being considered by current scholars (e.g., Peters, 2022).

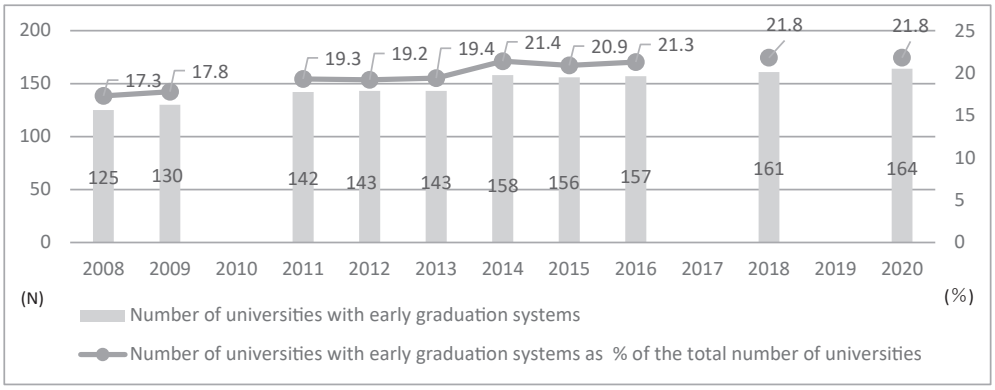
In recent years, some scholars have argued that gifted education in Japan differs from this international trend. As Yamanouchi (ed. 2018) states, it has been repeatedly emphasized that gifted education can be introduced without threatening educational equity[2], and can therefore be socially endorsed. Indeed, Aso (1997), Iwanaga (1999), and Iwanaga and Matsumura (eds. 2010) claim that gifted education can correct socioeconomic disparities, differentiating it from elite education. In short, there is a discrepancy between conclusions from Japanese and international researchers.

However, no empirical research supports the claim of educational equity regarding gifted education in Japan; in fact, there are few empirical studies on gifted education in Japan at all. For example, the actual number of universities with early graduation systems and the number of users is reported by MEXT (2022). Aso (1997), and Hirota (1997) have examined arguments regarding the practice of early university entrance in Japan. Iwanaga & Matsumura (eds. 2010) introduce the practice of early university entrance in Japan. However, these studies have not examined the link between gifted education and social equity in Japan. Therefore, it is unclear whether gifted education in Japan is socially equitable or corrects socioeconomic inequalities. Nevertheless, in recent years, there has been a move in Japan to introduce gifted education into primary and secondary education. For example, MEXT's 2023 budget includes funds related to gifted education.

This study empirically clarifies whether the early graduation system, as part of Japan's gifted education, is socially equitably distributed. As indicated by the fact that MEXT's 2023 budget includes funding for gifted education, it is expected that gifted education will expand in Japan in the future. As shown in Figures 1 and 2, the number of early graduation systems being established and used is on the rise. Therefore, it is worthwhile to empirically study the early graduation system as a case study in Japan, as focusing on the early graduation system will provide a better understanding of the state of gifted education in Japan and can to some extent predict the social distribution of gifted education should it be adopted throughout Japanese elementary and secondary education. Hence, this study will confirm the social distribution of the establishment of an early graduation system. It should be noted, however, that the percentage of students who use the early graduation system is very low, as shown in Figure 2, so there may be certain limitations to the findings obtained from this study. For example, given the small number of users, it is possible that even given the existence of the system, it is practically unavailable. Therefore, even if a social bias exists in the existence of the system, it is possible that the actual use of the system negates the social bias. However, the existence of the system is a prerequisite for its use. Therefore, it is important to conduct this study to clarify the relationship between the absence or presence of the system and social bias.

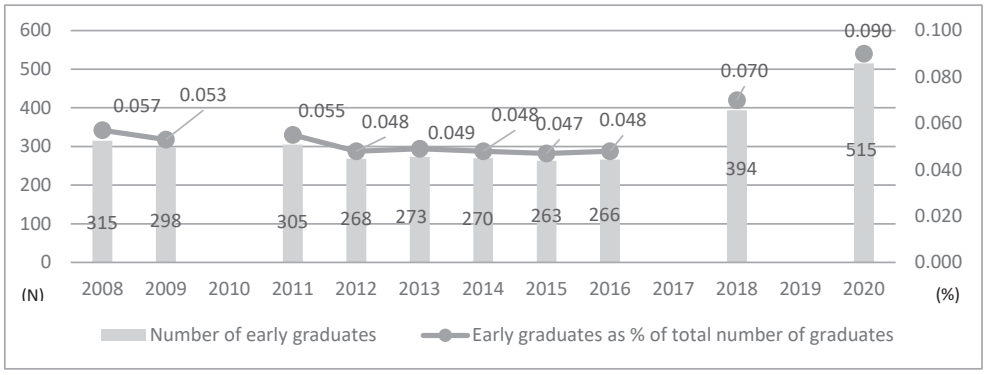
Early graduation systems have been introduced on a faculty (division) basis. Therefore, this study seeks to determine which faculties have introduced early graduation systems and which have social biases.

Figure 1 Universities with early graduation systems



Note: Created by the author from MEXT (2015, 2022)

Figure 2 Number of students using the early graduation system



Note: Created by the author from MEXT (2015, 2022) and the Basic School Survey

2. Literature Review

2.1 Studies of Gifted Education in Japan

Previous studies in Japan have often argued that gifted education does not threaten educational equity (Yamanouchi, ed. 2018). The literature that makes this claim (Aso, 1997; Iwanaga, 1999; Iwanaga & Matsumura, eds. 2010) will be reviewed below.

Aso (1997) states that tabooed discussions on gifted education lead to inequality, arguing that making discussion of gifted education taboo in public education lowers the standard of public education and results in a "closed elite education" in the private education sphere led by the exam education industry, which opens such educational opportunities only to the upper and middle classes. Iwanaga (1999) also claims also that gifted education is not limited to education for a narrow privileged elite, as in the case of elite education. Iwanaga (1999: 80) states that "the essential difference between traditional elite education and gifted education lies in their objectives. While the former aims to nurture the leaders of society, the latter assumes no such intention from the side that controls society, and is basically implemented according to the needs of those who receive education." Iwanaga and Matsumura (2010)

make a similar argument, stating that public support for giftedness, which has the potential to benefit society as a whole, is endorsed; without it, there is a social disadvantage for those who are gifted but born to economically disadvantaged families. Without support for the needs of gifted students, they argue, there will be social loss. In other words, gifted education that meets the needs of students' giftedness will correct existing socioeconomic disparities.

However, no empirical studies have demonstrated whether gifted education in Japan is socially equitable. Thus, the empirical results do not support the claim that socioeconomic disparities can be corrected by gifted education. It is important to examine whether gifted education in Japan is socially biased.

To achieve social equity in gifted education, there must be no social disparities in terms of access. Peters (2022) states that addressing inequality in gifted education requires a reduction in disparities of both access and opportunity. Some results support these claims (Card & Giuliano, 2016; McBee et al., 2016; Peters et al., 2019).

To determine whether there is a social bias in access, we examined whether there is a social bias in the distribution of early graduation systems in Japan.

2.2 Universities and Social Equity in Japan

In examining social bias in gifted education in Japan, we will summarize what social disparities have been identified as existing in Japan. Since the early graduation system applies to universities, this section addresses universities and social bias.

Previous research on universities and social equity in Japan has shown disparities in geography, gender, and socioeconomic backgrounds. Shima (1996) and Hozawa (2016) conducted studies on regional disparities, showing that disparities in university enrollment rates between metropolitan and rural areas and prefectures are increasing (Shima, 1996; Hozawa, 2016). Regarding gender differences, Brinton (1988) shows large differences between the rates of enrollment for men and women in Japan, and Osaka (2019) shows that, although the university enrollment rate for women has expanded, disparities still exist between the genders. Regarding socioeconomic disparities, Aramaki (2000) and Fujihara and Ishida (2016), among others, have shown that the impact of socioeconomic strata on higher education opportunities is stable. Aramaki (2000) also noted that there are differences in the entry to prestigious universities by socioeconomic strata.

Based on the above literature review, regional, gender and socioeconomic disparities are likely to be considered when it comes to the social biases that may exist in the distribution of early graduation systems, which amount to gifted education in Japan. Therefore, this study examines whether regional, gender and socioeconomic disparities exist in the distribution of early graduation systems.

3. Method, Data and Variables

3.1 Method

This study examines the association between the distribution of early graduation systems and social biases (geographical, gender and socioeconomic). Accordingly, we conducted two main analyses.

Analysis 1: Bivariate analysis of the presence/absence of an early graduation system and social disparity variables
Analysis 2: Binomial logit regression analysis, with the presence or absence of an early graduation system as the dependent variable

Analysis 1 tests whether there is a relationship between each social bias (geographical, gender and socioeconomic) and the presence or absence of an early graduation system. Analysis 2 examines whether each social bias affects the presence or absence of an early graduation system, even after controlling for other variables. Control variables are discussed below.

The unit of analysis is the faculty unit, because early graduation systems are introduced at the faculty unit level. To carry out the analysis using data from each faculty, we consider that universities with several faculties may show correlation among those faculties, which may not operate independently. Therefore, the independent and identically distributed (i.i.d.) assumption that they are independent and follow the same distribution is not strictly fulfilled. To conduct a binomial logit regression analysis, the Huber–White sandwich estimation was used, with robust standard errors for heterogeneous variance. The statistical software used for the analysis was R (version 4.3.1).

3.2 Data

The data used in this study are organized into original data-sets that were created by integrating data from publications and other sources. The presence or absence of an early graduation system, which was used as the dependent variable, refers to the academic and course regulations of each university and faculty. It was verified that the universities in question had an early graduation system at the end of the 2017 academic year. The independent and control variables used, along with their referents, are described below. The data used in this study are 2017 cross-sectional data because the dependent, independent, and control variables refer to 2017 data. In preparing the data, faculties related to health and medical sciences, including nursing faculties, were excluded from the overall data because these programs are six-year programs and are therefore not part of the early graduation system. This decision was made because there are cases in which departments of health and medical sciences exist within Faculties of Medicine, and it is difficult to distinguish between them. For example, data from Faculties of Agriculture were excluded from Departments of Veterinary Medicine data. The resulting data were as follows: N=1832. From there, N=1041 were gathered with no missing values for the independent and control variables, which will be discussed later.

3.3 Variables

3.3.1 Social Equity Variables

To examine the distribution of early graduation systems and social equity, the variables were set as follows.

For regional disparities, we refer to Hozawa (2016) and set regional variables. The regional variables were set as fringe regions, middle regions, and metropolitan areas. Referring to Hozawa (2016), the variables were set based on the geographical location of the university.

To account for gender disparities, the enrollment ratio of female students was used in the analysis. This variable refers to data described by Keisetsujidai (2017).

Table 1: Descriptive statistics of the variables

	Min	Max	Mean	S.D.
Dependent variable				
Early Graduation System	0	1	0.21	-
Independent variable				
Fringe regions	0	1	0.16	-
Middle regions	0	1	0.20	-
(ref. Metropolitan areas)			0.64	-
Female rate	4.1	100	49.33	27.24
National universities	0	1	0.22	-
Public universities	0	1	0.09	-
Prestigious private universities	0	1	0.05	-
(ref. Other private universities)			0.64	-
University Selectivity (deviation score)	35	67.5	46.37	7.85
Control variables				
Graduation rate	31.5	100	82.29	8.69
Advancement rate	0	82.2	10.57	16.18
Number of students	85	9316	1377.10	995.17
Humanities and Social Sciences	0	1	0.51	-
Science, Engineering, and Agriculture	0	1	0.21	-
(ref. Home Economics, Education, Arts, and Physical Education)			0.19	-
Other Faculties	0	1	0.09	-

Two variables were employed for socioeconomic disparities. The first is the type of university. In Japan, public universities are considered to have higher social prestige than private universities, while national universities have higher social prestige than public universities (Amano, 1986). As a pecking order also exists within private universities (Amano, 1986), private universities are also classified in terms of their public recognition. Therefore, national, public, prestigious private, and other private universities were set as the university types. For national, public, and private institutions, variables were created based on type. For prestigious private institutions, the variables are based on first-generation core universities in Kaneko's (1996) classification of private universities[3].

Another variable was the selectivity of the university (deviation score). Although socioeconomic disparities exist in admission to prestige universities (Aramaki, 2000), the selectivity (deviation score) of universities is higher for these universities. Therefore, university selectivity (deviation score) was used as a variable to examine the presence or absence of an early graduation system and socioeconomic bias. This variable refers to the deviation score of each faculty, as described in AERA Mook (2017).

3.3.2 Control Variables

Two types of control variables were set: one related to student demand and the other related to the faculty system.

Variables related to student demand were used as control variables. This is based on the assertion that gifted education is implemented according to the needs of the recipient (Iwanaga, 1999). Graduation rate, advancement rate, and number of students were employed as indicators of high student demand. These variables refer to data described by the Yomiuri Shimbun Education Network Office (2017).

Differences according to university department classification were also set as control variables to consider the differences in trends among the different faculties. For faculty classifications, we referred to the Yomiuri Shimbun Education Network Office (2017) and created

four categories: Humanities and Social Sciences; Science, Engineering, and Agriculture; Home Economics, Education, Arts, and Physical Education; and Others.

The descriptive statistics for the variables described so far are shown in Table 1.

4. Results

4.1 Bivariate analyses

Figures 3 and 4 show the results of the bivariate analysis of the presence or absence of an early graduation system and the social disparity variable. There was no significant association between the presence of an early graduation system and geographical bias (Figure 3, left side). However, as in Figures 3 and 4, there were significant differences between the presence of an early graduation system and gender (ratio of female students) and socioeconomic variables (type of college and college selectivity). Figure 3, right side shows the difference in the average number of women in departments with and without an early graduation system, which indicates that early graduation systems are established when the number of women is low. Figure 4, left side shows the percentage of respondents with an early graduation system for each type of college: the χ-square test results indicate that there is a significant relationship between the type of college and the presence of an early graduation system. In particular, national and prestigious private universities have early graduation systems. Figure 4, right side shows the difference in mean selectivity (deviation score) between those with and those without an early graduation system. It can be seen that early graduation systems are established when the selectivity (deviation score) of the university is high.

4.2 Binomial Logistic Regression Analyses

Table 2 presents the results of the binomial logistic regression analysis. Model 1 includes only the social bias variable. Model 2 includes both the social bias and the student demand variables. Model 3 includes social bias and faculty system variables. Model 4 includes the social bias variable and both control variables. In Models 1-3, among the social bias variables, gender and socioeconomic status had significant effects. However, in Model 4, which included both student demand and faculty system variables as controls, the gender variable had no significant effect. This result indicates that gender bias does not affect the estab-

Figure 3 Geographical and gender variables and early graduation systems

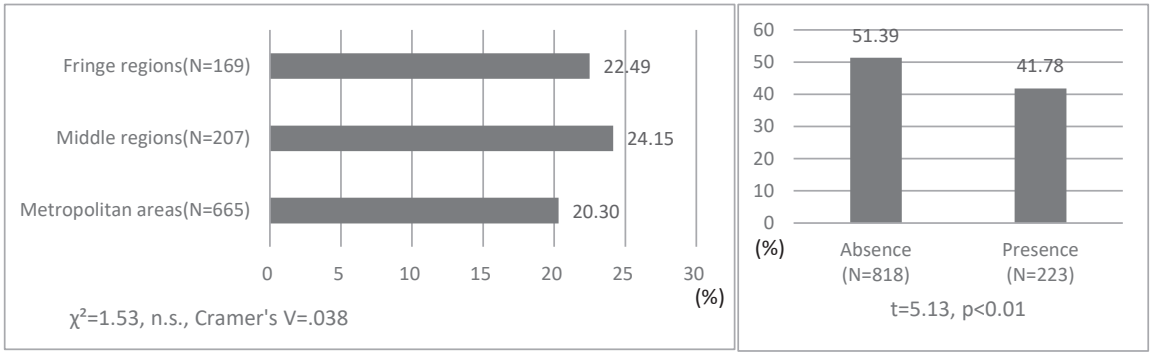
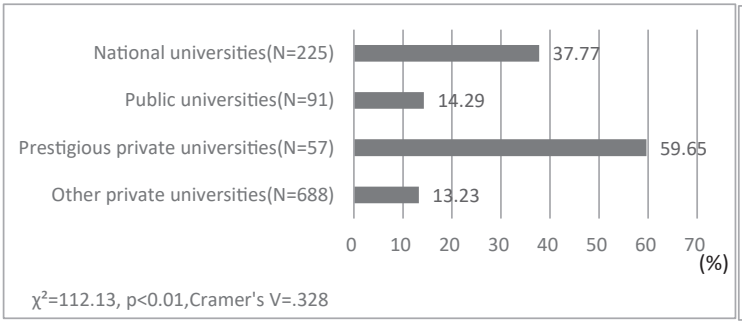


Figure 4 Early graduation systems, types of universities, and university selectivity



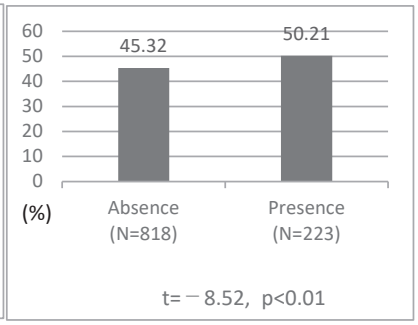


Table 2: Results of the binomial logistic regression analysis

	Model 1			Model 2			Model 3			Model 4		
	Coef.	S.E.	OR	Coef.	S.E.	OR	Coef.	S.E.	OR	Coef.	S.E.	OR
Geographical variables (ref. Metropolitan areas)												
Fringe regions	0.18	0.26	1.20	0.19	0.26	1.21	0.17	0.26	1.19	0.18	0.26	1.20
Middle regions	0.23	0.24	1.26	0.33	0.25	1.39	0.24	0.25	1.27	0.30	0.25	1.35
Female rate	-0.01**	0.00	0.99	-0.01†	0.00	0.99	-0.01*	0.00	0.99	-0.01	0.00	0.99
Types of Universities (ref. Other private universities)												
National universities	0.64*	0.31	1.90	0.75*	0.33	2.11	0.83**	0.32	2.29	0.92**	0.35	2.50
Public universities	-0.35	0.37	0.70	-0.25	0.38	0.78	-0.32	0.37	0.72	-0.21	0.38	0.80
Prestigious private universities	1.65**	0.34	5.19	1.56**	0.35	4.77	1.69**	0.35	5.40	1.61**	0.35	4.98
University selectivity /deviation score	0.04**	0.02	1.05	0.04*	0.02	1.04	0.04*	0.02	1.04	0.03†	0.02	1.03
Graduation rate				-0.02	0.01	0.98				-0.01	0.01	0.99
Advancement rate				0.00	0.00	1.00				0.00	0.00	1.00
Number of students				0.00†	0.00	1.00				0.00 †	0.00	1.00
Faculty system variables (ref. Home Economics, Education, Arts, and Physical Education)												
Humanities and Social Sciences							0.83**	0.29	2.28	0.77*	0.30	2.16
Science, Engineering, and Agriculture							0.69*	0.33	1.99	0.62	0.40	1.86
Other Faculties							0.78*	0.36	2.19	0.78*	0.38	2.17
Constant	-3.23**	0.77	0.04	-2.13†	1.11	0.12	-3.77**	0.81	0.02	-3.14*	1.25	0.04
-2Log-Likelihood	962.68			957.67			953.36			950.06		
N	1041											

†p<0.10, *:p<0.05, **:p<0.01, ()=reference category, OR=Odds Ratio
Standard Errors are robustly corrected by Huber-White sandwich estimation

lishment of early graduation systems when student demands and the faculty system are controlled. However, the results show that the socioeconomic variables of college type and selectivity (deviation score) affected the establishment of early graduation systems, even when controlling for student demand and faculty system variables.

5. Discussion

Some scholars in Japan have argued that gifted education can correct social disparities,

but no studies have empirically examined the relationship between gifted education and social bias. To show the results of empirical research in Japan, this study examined the relationship among geographic, gender, and socioeconomic biases and the presence or absence of an early graduation system, which is a type of gifted education in Japan. Our results showed that controlling for student demand and faculty system eliminated the significant impact of gender bias. However, the effects of university type and university selectivity (deviation score), which were employed as socioeconomic variables, were present even when other variables were controlled. This finding suggests that socioeconomic bias exists with regard to the presence or absence of an early graduation system. Therefore, the argument that the early graduation system does not threaten educational equity and leads to the correction of social disparities (Aso, 1997; Iwanaga, 1999; Iwanaga & Matsumura, eds. 2010) is false based on the current situation in Japan. One implication of these results is that particular attention should be paid to socioeconomic disparities when introducing and expanding gifted education into Japan's primary and secondary education systems.

Three limitations of this study are noted. The first is the interpretation of the results. The result that there is no gender bias as a result of controlling by the control variables may need to be kept in mind. This is because there are gender differences in undergraduate majors in Japan (Chinen 2022), and the faculty system variables may include such effects. This is one of the limitations of this study. The second point concerns data. The study also needs to be updated to reflect the latest situation in Japan. One of the limitations of this study is that the data is slightly outdated, as it is cross-sectional data from 2017. The third is validity. In this study, the early graduation system was taken up as a case study of gifted education in Japan, but the percentage of users is small and the results obtained may be limited. Therefore, the findings from this study may have arisen from this perspective, and may not be valid as a case study of gifted education in Japan. In addition, the type of university was set as a socioeconomic variable, but the literature referred to is outdated. In this respect, the validity of the results may be limited.

Two issues need to be addressed in the future. First, additional examination of data is necessary. Some faculties and variables were not examined and time series were not considered. For example, the study did not address the issue of racial bias, which has been addressed in previous studies conducted overseas. Second, the reason why socioeconomic bias persists after controlling for other variables should be determined. Qualitative research using faculty meeting minutes would help to clarify the decision-making process that was used to decide whether to establish early graduation systems.

Acknowledgement
This work was supported by JST SPRING, Grant Number JPMJSP2114.

Notes

(1) Article 89 of the School Education Act contains a description of the early graduation system (as of 2023). Availability of the system depends on whether the system is established in each faculty of each university. In order to use the early graduation system, students must meet the grade standards and other requirements set by each university department. For example, a GPA of 3.6 or higher is required.

(2) An exception is Hirota (1997), who argues that gifted education has the potential to lead to the reproduction of socioeconomic stratification.

(3) For example, Toyonaga (2018) describes these first-generation core universities (Kaneko 1996) as having older establishment dates and a higher social reputation.

References

AERA Mook (2017). *2018-nendo Daigaku Ranking (2018 University Rankings)* (Tokyo: Asahi Shimbun Shuppan) (Japanese).

Amano, I (1986). *Koto Kyoiku no Nihon teki Kozo (The Japanese Structure of Higher Education)* (Tokyo: Tamagawa University Press) (Japanese).

Aramaki, S (2000). Kyoiku Kikai no Kakusa ha Shukusho shitaka: Kyoiku Kankyo no Henka to Shusshin Kaiso Kan Kakusa (Has the Gap in Educational Opportunity Narrowed?: Changes in the Educational Environment and the Gap between Classes of Origin) in Kondo, H (ed) (2000) *Nihon no Kaiso System (Hierarchical System of Japanese Society)*, (Tokyo: University of Tokyo Press) (Japanese).

Aso, M (1997). Saino Kyoiku no Hitsuyosei (The Need for Gifted Education), in Aso, M and Iwanaga, M (eds) (1997) *Sozoteki Saino Kyoiku* (*Creative Giftedness Education*) (Tokyo: Tamagawa University Press) (Japanese).

Brinton, M. C. (1988). The social-institutional bases of gender stratification: Japan as an illustrative case, *American Journal of Sociology*, 94(2): 300-334. https://doi.org/10.1086/228993

Card D., & Giuliano L. (2016). Universal screening increases the representation of low-income and minority students in gifted education. *Proceedings of the National Academy of Sciences*, 113(48), 13678-13683. https://doi.org/10.1073/pnas.1605043113

Chinen, A (2022). Daigaku wo Sentakusuru Ronri to Gender (The Logic of University Choice and Gender), *The Japanese Journal of Educational Research*, 89(4) 552-564. (Japanese)

Fujihara, S & Ishida, H (2016). The absolute and relative values of education and the inequality of educational opportunity: Trends in access to education in postwar Japan, *Research in Social Stratification and Mobility*, 43, 25-37. https://doi.org/10.1016/j.rssm.2016.03.001

Goings, R. B., & Ford, D. Y. (2018). Investigating the intersection of poverty and race in gifted education journals: A 15-Year Analysis. *Gifted Child Quarterly*, 62(1), 25–36. https://doi.org/10.1177/0016986217737618

Hamilton, R., McCoach, D. B., Tutwiler, M. S., Siegle, D., Gubbins, E. J., Callahan, C. M., Brodersen, A. V., & Mun, R. U. (2018). Disentangling the Roles of Institutional and Individual Poverty in the Identification of Gifted Students. *Gifted Child Quarterly*, 62(1), 6–24. https://doi.org/10.1177/0016986217738053

Hirota, T (1997). Saino Kyoiku no Rekishiteki Kosatsu: Kakono Soki Nyugakusei/Tokubetsu Kyoiku to Gendai no 'Reigai Sochi' Koso (A Historical Study of Gifted Education: Past Early Entrance Systems, Special Education and the Modern 'Exceptional Measures' Concept), in Aso, M and Iwanaga, M (eds) op. cit.

Hodges, J., Mun, R., and Rinn, A. (2022). Disentangling inequity in gifted education: The need for nuance in racial/ethnic categories, socioeconomic status, and geography. *Gifted Child Quarterly*, 66(2), 154–156. https://doi.org/10.1177/00169862211040533

Howley, A., Rhodes, M., and Beall, J. (2009). Challenges facing rural schools: Implications for gifted students. *Journal for the Education of the Gifted*, 32(4), 515–536. https://doi.org/10.1177/016235320903200404

Hozawa, Y. (2016) *Koto Kyoiku Kikai no Chiiki Kakusa (Geographical Disparities in Higher Education Opportunities)* (Tokyo: Toshindo) (Japanese).

Iwanaga, M (1999). Daigaku no Universal-ka to Elite Kyoiku (Universalisation of universities and elite education), *Japanese Journal of Higher Education Research* 2: 65-84(Japanese).

Iwanaga, M and Matsumura, N (eds) (2010). *Saino to Kyoiku: Kosei to Saino no Chihei e (Giftedness and Education: Towards the Horizon of Individuality and Giftedness*) (Tokyo: Hoso Daigaku Kyoiku Shinkokai) (Japanese).

Kaneko, M (1996). Koto kyoiku Taishuka no Ninaite (Leaders in the Popularization of Higher Education) in Amano, I & Yoshimoto, K (eds) (1996) *Gakushu Shakai ni Okeru Mass Koto Kyoiku no*

Kozo to Kino ni Kansuru Kenkyu (Research on the Structure and Function of Mass Higher Education in a Learning Society), 37-59. (Japanese)

Keisetsujidai (2017). *Daigaku no Shinno Jitsuryoku Joho Kokai Book (The True Strength of the University Information Disclosure Book)* (Tokyo: Obunsha)(Japanese).

McBee, M. T., Peters, S. J., & Miller, E. M. (2016). The impact of the nomination stage on gifted program identification: A comprehensive psychometric analysis. *Gifted Child Quarterly*, 60(4), 258–278. https://doi.org/10.1177/0016986216656256

MEXT (2015) Daigaku ni okeru Kyoiku Naiyo nado no Kaikaku Jokyo nitsuite (Heisei 25-nendo) (Status of Reform of Educational Content, etc. at Universities (2013)) (http://www.mext.go.jp/a_menu/koutou/daigaku/04052801/__icsFiles/afieldfile/2016/05/12/1361916_1.pdf. Last accessed August 30, 2023)

MEXT (2022) Reiwa 2-nendo no Daigaku ni okeru Kyoiku Naiyo nado no Kaikaku Jokyo nitsuite (gaiyo) (Status of Reform of Educational Content, etc. at Universities in Academic Year 2020 (Summary)) (https://www.mext.go.jp/content/20230117-mxt_daigakuc01-000025974_1r.pdf. Last accessed August 30, 2023)

Osaka, Y (2019). Kyoiku ni okeru gender Byodou: Daigaku Shingakuritsu no Danjosa ni Chumoku shite (Gender Equality in Education: Focusing on Gender Differences in College Enrollment Rates) *Chiiki to Jumin: Community Care Kyoiku Kenkyu Center nenpou* (*Community and Residents: Annual Report of the Center for Education and Research in Community Care*) 3: 75-79. (Japanese)

Peters, S. J. (2022). The challenges of achieving equity within public school gifted and talented programs. *Gifted Child Quarterly*, 66(2), 82–94. https://doi.org/10.1177/00169862211002535

Peters, S. J., Rambo-Hernandez, K., Makel, M. C., Matthews, M. S., & Plucker, J. A. (2019). Effect of local norms on racial and ethnic representation in gifted education. *AERA Open*, 5(2). https://doi.org/10.1177/2332858419848446

Plucker, J. A., & Harris, B. (2015). Acceleration and economically vulnerable children , In Assouline, S. G., Colangelo, N., VanTassel-Baska, J., & Lupkowski-Shoplik, A. (eds) (2015), *A Nation Empowered, Volume 2: Evidence Trumps the Excuses Holding Back America's Brightest Students*. pp. 181-188. Iowa City: University of Iowa Press.

Shima, K. (1996). Showa 50-nendai Zenki Koto kyoiku Keikaku Iko no Chiho Bunsan Seisaku to sono Minaoshi wo Megutte (On the Policy of Decentralization and Its Review after the Higher Education Plan of the Mid-1970s) *The Journal of Educational Sociology*, 59, 127-143. (Japanese)

Southern, W. Thomas., & Jones, E. D. (2015) Types of acceleration: Dimensions and Issues, In Assouline, S. G., et al. op. cit., pp. 9-18.

Toyonaga, K (2018). Shusshin Daigaku no Gakkoreki to Senkobunya ga Shoshoku ni Ataeru Eikyo no Danjo Hikaku Bunseki: Gakkoreki Koka no Genteisei to Senkokan Tracking (Effects of College Selectivity and College Major on First Job Attainment among Male and Female University Graduates: Limited Scope of College Selectivity Effects and Tracking between College Majors) *Japanese sociological review*, 69(2), 162-178. (Japanese)

Yamanouchi, K (ed.) (2018). *Saino Kyoiku no Kokusai Hikaku (International Comparison of Gifted Education)*, (Tokyo: Toshindo) (Japanese).

Yomiuri Shimbun Education Network Office (2017). Daigaku no Jitsuryoku 2018 (University Competencies 2018) (Tokyo: Chuo Koron Shinsha) (Japanese).