

JAPANESE EDUCATION

Organizing Questions

- How is the education system in Japan structured?
- How is student life in Japan and the United States similar and different?
- What are some unique challenges facing the Japanese education system today?

Introduction

Students begin this lesson discussing their own educational experiences. Students read an informational handout on some similarities and differences between the education systems in Japan and the United States, and they discuss as a class. Students then learn about three key challenges facing Japanese education today and work in small groups to develop a proposal for education reform that addresses one of these challenges. Students prepare a presentation and present it to the class. Throughout this lesson, students become familiar with the structure of the Japanese education system and the key issues leading into the near future.

Objectives

In this lesson, students will

- gain a broad understanding of the education system in Japan;
- consider similarities and differences between student life in Japan and the United States;
- become familiar with the key challenges facing Japanese education today; and
- develop and present proposals for education reform to the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT).

Connections to Curriculum Standards

This lesson has been designed to meet certain national history, social studies, and common core standards as defined by the National Center for History in the Schools, the National Council for the Social Studies, and the Common Core State Standards Initiative. The standards for the lesson are listed here.

National History Standards (from the National Center for History in the Schools)

World History

Era 9, Standard 3A: The student understands major global trends since World War II.

- Grades 9–12: Analyze connections between globalizing trends in economy, technology, and culture in the late 20th century and dynamic

assertions of traditional cultural identity and distinctiveness. [Analyze cause-and-effect relationships]

National Social Studies Standards (from the National Council for the Social Studies)

- Culture; Thematic Strand I: Social studies programs should include experiences that provide for the study of culture and cultural diversity.
- Time, Continuity, and Change; Thematic Strand II: Social studies programs should include experiences that provide for the study of the past and its legacy.
- People, Places, and Environments; Thematic Strand III: Social studies programs should include experiences that provide for the study of people, places, and environments.
- Individual Development and Identity; Thematic Strand IV: Social studies programs should include experiences that provide for the study of individual development and identity.
- Individuals, Groups, and Institutions; Thematic Strand V: Social studies programs should include experiences that provide for the study of interactions among individuals, groups, and institutions.
- Production, Distribution, and Consumption; Thematic Strand VII: Social studies programs should include experiences that provide for the study of how people organize for the production, distribution, and consumption of goods and services.
- Science, Technology, and Society; Thematic Strand VIII: Social studies programs should include experiences that provide for the study of relationships among science, technology, and society.
- Global Connections; Thematic Strand IX: Social studies programs should include experiences that provide for the study of global connections and interdependence.

Reading Standards for Literacy in History/Social Studies (from the Common Core State Standards Initiative)

- Standard 2, Grades 11–12: Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.
- Standard 4, Grades 9–10: Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history / social science.
- Standard 7, Grades 11–12: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

- Standard 9, Grades 11–12: Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources.

Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects (from the Common Core State Standards Initiative)

- Standard 4, Grades 6–12: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Standard 6, Grades 9–10: Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.
- Standard 7, Grades 9–12: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- Standard 9, Grades 6–12: Draw evidence from informational texts to support analysis, reflection, and research.

Materials	Handout 1, <i>Education Systems in Japan and the United States: A Comparative Approach</i> , 30 copies Handout 2, <i>Road to 2020: Challenges in Japanese Education</i> , 30 copies Handout 3, <i>Education Reform Proposal Project</i> , 30 copies Handout 4, <i>Education Reform Proposal Presentations</i> , 30 copies Teacher Information 1, <i>Road to 2020: Challenges in Japanese Education</i> Teacher Information 2, <i>Education Reform Proposal Rubric</i> , 10 copies
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Equipment	Whiteboard or butcher paper and marker
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Teacher Preparation	Instructions and materials are based on a class size of 30 students. Adjust accordingly for different class sizes. <ol style="list-style-type: none"> 1. Make the appropriate number of copies of handouts. 2. Become familiar with the content of the handouts and teacher information. Please note that Teacher Information 1, <i>Road to 2020: Challenges in Japanese Education</i>, is a more detailed version of Handout 2 of the same title. 3. Prepare presentation materials as needed.
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Time	Three 50-minute class periods
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Procedures Day One

1. Begin the lesson with a class discussion about the daily lives that they lead as students. Discuss things like transportation to and from school, the length of the school day and academic year, extracurricular activities, etc. Record student responses on the whiteboard or butcher paper for future reference.
2. Ask students what they know about schools and the education system in Japan, posing the following questions to the class:
 - What forms of transportation do you think Japanese students use to get to school?
 - What do you think a typical school day looks like for a Japanese high school student?
 - How involved do you think Japanese students are in extracurricular activities?
 - Do you think Japanese students have the same concerns and challenges that you have?
3. Explain to the class that in this lesson they will learn about the Japanese education system. Distribute one copy of Handout 1, *Education Systems in Japan and the United States: A Comparative Approach*, to each student and instruct each student to read the handout independently while considering the questions at the end of the handout.
4. When students are finished reading Handout 1, facilitate a debriefing discussion using the following prompts as a guide. When discussing the first prompt, refer back to the student responses from the initial class discussion on their daily lives as students.
 - What are some similarities and differences between schools and student life in Japan and the United States?
Similarities include the overall structure (preschool, elementary school, middle school, high school, higher education), extracurricular activities, and the general function of education in society. Differences include the academic calendar (Japan's academic year begins in April and ends in March), the examination-based admissions process for colleges and elite high schools, juku ("cram schools" in Japan), how students typically travel to and from school, strict rules for physical appearance, and being group-oriented versus independently minded.
 - What are juku, and why do they play such a significant part in the lives of Japanese students?
Juku are private tutoring classes that students attend in Japan as supplementary education. Most students attend juku to help them to prepare for college entrance examinations. Due to the time that students dedicate to attending juku, there is very limited time available for extracurricular activities and other interests.

- What are some unique aspects of Japanese education that you would want to adopt for your own schooling? Why?

Answers will vary.

- What are some unique aspects of U.S. education that you would recommend to Japanese schools? Why?

Answers will vary.

5. Distribute one copy of Handout 2, *Road to 2020: Challenges in Japanese Education*, to each student and explain that they will now explore some of the key challenges facing the Japanese education system today. Inform students that after reading the handout, they will be working in small groups to develop proposals for education reform to the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT). Allow students to read the handout independently. If students need more time, instruct students to complete the reading for homework.
6. Facilitate a debriefing discussion about the handout using the following prompts as a guide:
 - What are the most significant challenges facing Japanese education today?
the gender gap between boys and girls in mathematics and science; the college admissions process; the lack of early childhood education and limited support for work-life balance and women in the workplace
 - What are some ways in which they are similar to challenges in our own education system? How are they different?
Answers will vary.
 - What information in the handout did you find most interesting or most surprising?
Answers will vary.

Day Two

1. Explain that students will work in small groups to prepare proposals for education reform in Japan. They will develop a reform proposal to improve a key issue in Japanese education, and present their proposal to the class. Inform students that each group will have five minutes to present its proposal during the next class period.
2. Distribute one copy of Handout 3, *Education Reform Proposal Project*, to each student and review the instructions as a class.
3. Divide the class into groups of 3–4 students. Assign each group to one of the three challenges addressed in Handout 2—the gender gap, college admissions, and lack of access to early childhood education. Allow groups the remainder of class time to divide up the tasks as outlined in Handout 3 and to plan their proposals.
4. Students must complete their proposals and prepare their assigned tasks on Handout 3 as homework, and come to the next class period prepared to share their proposal with the class.

- Day Three
1. Allow a few moments for students to prepare for their presentations. Remind students that each group has three to five minutes to complete its presentation.
 2. Distribute one copy of Handout 4, *Education Reform Proposal Presentations*, to each student and explain that they should use this sheet to take notes during their classmates' presentations.
 3. Facilitate group presentations, and evaluate each using Teacher Information 2, *Education Reform Proposal Rubric*, as a guide.
 4. When presentations are complete, allow students a few moments to answer the questions at the end of the handout on a separate sheet of paper, and then collect completed handouts and responses.
 5. To conclude the lesson, facilitate a debriefing discussion with the class, using the following prompts as a guide.
 - Which of the three challenges do you think is the most important to reform, and why?
 - Which of the proposals would have the greatest impact on Japanese society? Why?

Assessment The following are suggestions for assessing student work in this lesson:

1. Evaluate group proposals and presentations, using Teacher Information 2, *Education Reform Proposal Rubric*, as a guide.
2. Informally assess student participation during the group presentations, demonstrated by their notes taken on Handout 4, *Education Reform Proposal Presentations*.
3. Assess student participation in group and class discussions, evaluating students' ability to
 - clearly state their opinions, questions, and/or answers;
 - provide thoughtful answers;
 - exhibit sensitivity toward different cultures and ideas;
 - respect and acknowledge other students' comments; and
 - ask relevant and insightful questions.

EDUCATION SYSTEMS IN JAPAN AND THE UNITED STATES: A COMPARATIVE APPROACH

BY DR. MARIKA S. KAWANO

vocational—relating to education designed to provide the necessary skills for a particular job or career

compulsory—required by law or a rule; obligatory

The overall structure and function of Japanese schooling is very similar to the education system in the United States. Just like in the United States, Japanese children typically go through schooling in the order of preschool, elementary school, middle school, high school, and higher education (vocational schools, colleges, and universities). While it is compulsory for American children to attend high school, it is optional for children in Japan. Nonetheless, 98 percent of Japanese middle school graduates continue on to high school, and about half of the high school graduates go on to higher education.

The education system in Japan is centralized and regulated by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), which is one of the ministries of the Japanese government. MEXT sets the curriculum guidelines, education policy, and national standards for schools in Japan.

Unlike the traditional academic calendar in the United States (e.g., fall through spring), a new academic year in Japan starts in April and ends in March. Japanese schools are typically based on the trimester system, with some high schools using the semester system. There are three major school breaks: summer, winter, and spring. The summer break is the longest, but is usually only about 40 days long, from mid-July to the end of August. Because it falls in the middle of the school year, students typically go to school at least a couple of days a week for club activities. Furthermore, Japanese students also receive a considerable amount of homework over the summer.

Another notable difference between the two educational systems is Japan's distinct screening process based largely on entrance examinations.* Because high school and higher education are not mandatory, middle school students and high school students who want to continue on to a high school or college, respectively, are required to take and pass entrance examinations.† These school-specific entrance examinations are generally written achievement tests on various subjects, taking place in the winter months, usually a month or two before graduation.‡ Japanese entrance examinations have been the target of widespread criticism, both domestically and abroad for their overheated competitiveness and focus on rote memorization. Because of this, there has been a growing movement to reform the system of school admissions. Some universities have adopted other ways of admitting students, such

rote—proceeding mechanically and repetitiously, from memory, without thought of the meaning

* Some public and private schools in the United States also require entrance examinations.

† There are a few school systems with middle and high schools attached, forming a six-year school, where students can automatically proceed from middle to high school.

‡ The situation is a little more complicated for national and public high schools and colleges as there are nationally or locally administered uniform achievement tests in addition to school-specific exams.

as instituting an admissions process based on interviews and essays. However, the traditional entrance examination remains the norm.

To prepare for the entrance examinations, many children attend *juku* (often translated as “cram schools”).^{*} *Juku* are private tutoring classes that students attend in addition to their regular schools. Japanese students go to *juku* because it is considered too difficult to excel on the entrance examinations otherwise, especially for those aiming to enter elite schools. Students attend *juku* anywhere from twice a week to daily for a couple of hours each day. For many Japanese students, *juku* occupies an important part of their lives. While most middle school and high school students participate in extracurricular activities such as club sports, music, or other interests, they often cease such activities before the summer of their senior year to focus solely on preparing for the university entrance examinations. Some seniors may not get any time off for summer or winter break, as they have to attend *juku* day and night.

As we have seen, the Japanese and U.S. education systems are similar in some ways and different in others. There are also some notable differences in their school cultures. The very first difference you may notice when entering a Japanese school is the shoe cubbies located by the entrance of the school building. Similar to how you would take off your shoes when entering a Japanese home, students must remove their shoes and change into indoor shoes. Another difference you may see is students walking to school by themselves, often unaccompanied by adults. Even very young elementary school children often walk to school without their parents. School buses are not common and it is rare for parents to drive children to school in urban areas. Middle and high school students generally walk, bike, or use public transportation—such as buses and trains—depending on how far away they live. It is not unusual for private school students to spend an hour (or even two) to commute by train. In Tokyo where there are many private schools at all grade levels, it is typical to see children as young as first graders riding a train unaccompanied by adults in the morning.[†]

Other differences include school rules at the middle school and high school levels. Since much of Japan experiences four distinct seasons, all schools have a regular uniform and a summer-time uniform, which is cooler and lighter. In terms of rules, there are schools with varying degrees of strictness. In general, the rules are stricter in Japan than in the United States when it comes to physical appearance. For example, most schools do not allow students to dye their hair, wear makeup, or wear jewelry and accessories. The existence of uniforms and school rules in Japan seems to signify that while individuality is celebrated and welcomed in U.S. schools, the Japanese prioritize the value of the group. This is also evident in the structure of classroom instruction in Japan.

^{*} There are different types of *juku* and not all of them are aimed for exam preparation. Some *juku* are called *hoshu juku*, which focus on remediation. In this handout, we are primarily focusing on *shingaku juku*, or exam preparation cram schools.

[†] Japan is generally safer compared to other countries, but basic precautions, such as travelling in a group, are taken to enable children to commute by themselves.

ability tracking—
dividing students into
different classes based on
academic ability

Japanese students are assigned to a single homeroom teacher, and often stay in their homeroom class throughout the day with the same group of students as the teachers of different subjects move between classrooms. A strong emphasis is placed on equality for all students in the Japanese education system. In the United States, by contrast, students move independently from class to class, and ability tracking is still commonly used to differentiate students by academic difficulty. Lastly, Japanese schools are different in that students are in charge of cleaning their schools daily, from sweeping and wiping the classroom floor, to cleaning common spaces such as hallways and entrances. Having students clean up after themselves is regarded as an important life lesson, and is considered as a valuable educational practice in Japan.

While the overall structure and function of the educational systems in Japan and the United States are similar, there are some major differences, especially at the micro level of students' daily school life. These unique educational experiences on both sides of the Pacific will continue to evolve and play a vital role in the future of their respective cultures and societies.

Questions

Be prepared to discuss the following questions in class.

1. What are some similarities and differences between schools and student life in Japan and the United States?
2. What are *juku*, and why do they play such a significant part in the lives of Japanese students?
3. What are some unique aspects of Japanese education that you would want to adopt for your own schooling? Why?
4. What are some unique aspects of U.S. education that you would recommend to Japanese schools? Why?

ROAD TO 2020: CHALLENGES IN JAPANESE EDUCATION

BY DR. RIE KIJIMA

Introduction

There are many pressing issues that policymakers and educators are grappling with today in improving the state of education in Japan. There are some concerns that the current education system is not doing enough to prepare students for a globalized world. Three key issues have been the focus of recent discussions among Japanese policymakers and educators: (1) addressing the gender gap between boys and girls in mathematics and science; (2) reforming college admissions policies; and (3) investing in early childhood education and families.

gender gap—the differences in opportunity and achievement between men and women in areas such as employment, education, health, and politics

Context

Japan is taking various steps to reform the education system to meet the demands of the 21st century. In light of the 2020 Tokyo Olympics, the Japanese government is revamping its English education by introducing the subject as early as the third grade.¹ Also, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has created a system to designate “Super Global High Schools.”² These schools have more flexibility in deciding what curriculum to teach than regular public schools, which could include things like teaching mathematics and science through English instruction. Having more funding to hire good teachers for these elite high schools allows them to offer courses that better prepare students for a globalizing society.

Gender Gap in Learning Outcomes

Girls are lagging behind boys in two of the most important subject areas that lead to high-paying jobs: mathematics and science. According to the results of the 2012 Programme for International Student Assessment (PISA), there is a wide gap between Japanese boys and girls in their learning outcomes. Japanese girls score 18 points lower than their boy peers in mathematics, and 11 points lower in science.³

According to the U.S. Department of Commerce, occupations in Science, Technology, Engineering, and Mathematics (STEM) are expected to grow 17.0 percent from 2008 to 2018, compared to 9.8 percent for non-STEM occupations.⁴ Furthermore, STEM careers pay better than non-STEM fields, contributing to individual financial stability and greater opportunities for career development. If Japan wants to advance the status of women, then it must address the gender gap in schools, especially in mathematics and science.

College Admissions Policy

Colleges and universities in Japan have traditionally based admissions on a student's entrance examination score. Unlike in the United States, where other factors like extracurricular activities and GPA are a significant factor in college admissions, Japanese high school students rely solely on earning a high score in the college entrance examination. This creates a high-pressure environment in which students focus only on preparing for the exam during their last two years of high school.

In 2020, Japanese public universities, such as the University of Tokyo, will introduce a new college admissions policy by overhauling its existing centralized college entrance examination.⁵ MEXT has proposed to introduce two types of national tests for high school students.⁶ The first type of assessment will evaluate basic competency and knowledge acquisition in high school.⁷ The second type of national test is the Learning Assessment for applicants. The purpose of this assessment is to promote learning that focuses on critical thinking, the ability to make good judgments, and effective communication skills.⁸ Another feature of this assessment is that it will assess students not on their memorization skills, but their ability to come up with solutions and communicate their ideas.

This new reform in the college entrance examination has various implications. The first implication is that it will diversify the kind of learning that happens in school and in extracurricular programs such as *juku*. *Juku* ("cram schools"), which have typically focused on strategies to ace the entrance examination, will become obsolete. Instead, new types of *juku*—such as the ones that focus on essay writing, debates, and TOEFL or SAT prep courses—will be in greater demand.

Another implication is that the greater emphasis on globalization has steered Japan to adopt International Baccalaureate (IB) programs in some high schools. The government is working to increase the number of high schools with IB programs from 16 schools in 2012 to over 200 schools by 2018.⁹ This shift in policy is a reflection of how the government of Japan is trying to meet the new demands of the 21st century and to internationalize its education programs. This new emphasis on IB programs is also in line with the change in college admissions policy toward greater recognition of internationally accredited programs.

Investment in Early Childhood Education and Families

Another key issue is the need to invest in early childhood education and families. This point is particularly important because it goes hand-in-hand with women's involvement in the labor market.

In 2013, Prime Minister Shinzo Abe launched "Womenomics," a policy that promotes women's participation in the workforce with an aim to boost economic development.¹⁰ According to the World Economic Forum, Japan's gender parity is dismal, ranking at 101st out of 145 countries.¹¹ While Japanese women are among the most highly educated in the world,

Test of English as a Foreign Language (TOEFL)—a

standardized test to measure the English language ability of non-native speakers wishing to enroll in English-speaking universities

International Baccalaureate (IB)—a curriculum that focuses on international education and rigorous assessment, and promotes intercultural understanding and respect

gender parity—equality between men and women in access to educational and economic opportunities

Japan lags behind other countries in achieving gender equality in political and economic realms. According to data collected by the World Economic Forum, on average, Japanese women earn 65 percent of what Japanese men earn. Among women who decide to re-enter the labor market after having a child, approximately 30 percent of them take part-time positions. These positions are more susceptible to layoffs, leading to economic vulnerability, especially among single-parent households.

There are many reasons for this alarming gender disparity in Japan, ranging from cultural to economic. One very prominent issue related to education is the lack of high-quality childcare facilities around the country. According to the Ministry of Health, Labor, and Welfare, as of 2015 there were approximately 20,000 children who were waitlisted but not offered a spot at a daycare. Eighty-five percent of these children were 0–2 years old. Women who desire to get back into the labor market are unable to do so without access to high-quality daycare or nursery schools. This is partly explained by male-centric work environments where employees are expected to work long hours. The government and some companies are just beginning to consider prioritizing work-life balance in order to create better conditions for work, raising children, and taking care of elderly family members.

Conclusion

These are some of the key issues in education that are being discussed among educators, scholars, and policymakers in Japan. The gender gap in test scores between girls and boys in mathematics and science, the reform of the college admissions process, and the strong need to invest in early childhood education and families to create a better work-life balance are some of the most pressing issues related to education in Japan in the near future.

EDUCATION REFORM PROPOSAL PROJECT

For this project, you and your partners will consider a key challenge facing the Japanese education system, develop an education reform proposal around the issue, and share it with the class.

1. Write down your assigned topic. As a group, review the section of Handout 2 that discusses your assigned topic.
2. Divide the following tasks among your group members: (1) writing the topic summary; (2) writing the compare/contrast paragraph; and (3) writing the summary of your education reform proposal. (Short descriptions of these tasks appear below.) If you have more than three people in your group, two people can work together to write the compare/contrast paragraph and/or the proposal summary.
3. Spend some time discussing all three tasks as a group. Brainstorm proposal ideas together and decide on one proposal that you agree would be most useful and feasible.
4. Prepare as a group to present your information to the class. Your presentation should be between three and five minutes in length.

Your presentation will be evaluated on content, organization of information (logical, interesting, and organized), and overall presentation skills (speaking clearly, maintaining eye contact with the audience). After your presentation, submit one version of this completed handout to your teacher. You may submit your answers independently of this handout if needed.

Use the space below to plan your project and presentation with your group.

Research topic:	
Research topic summary: (write one paragraph summarizing the issue)	

Compare/Contrast:
(write one paragraph
comparing/contrasting how
this issue is addressed in
your own education system)

**Education Reform
Proposal:**
(write one to two paragraphs
summarizing your proposal
idea)

EDUCATION REFORM PROPOSAL PRESENTATIONS

Take brief notes in the space below while watching the group presentations.

Names of Presenters	Key Issue	Notes

handout 4

Names of Presenters	Key Issue	Notes

Questions

Answer the following questions on a separate sheet of paper.

1. Which proposal was most popular with your classmates? Which was least popular?
2. What did you find most interesting about Japanese education from the presentations you watched?
3. What issue in Japanese education do you think is most in need of reform today, and why?

ROAD TO 2020: CHALLENGES IN JAPANESE EDUCATION

BY DR. RIE KIJIMA

Note to teacher: The information provided below is for your background knowledge and is a more detailed version of Handout 2, Road to 2020: Challenges in Japanese Education.

Introduction

There are many pressing issues that policymakers and educators are grappling with today in improving the state of education in Japan. Three topics in particular have been front and center of recent discussions among policymakers and educators. These are: (1) addressing the gender gap in learning outcomes, (2) reforming the college admissions policy; (3) investing in pre-primary education and families.

Context

Japan is currently focused on trying to meet the pressures of the international community as well as addressing economic stagnation and a rising poverty level. First, Japan is taking various steps to reform education policies to meet the demands of the 21st century. In light of the 2020 Tokyo Olympics, the Japanese government is revamping its English education by introducing the subject as early as the third grade.¹² Also, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) has created a system to designate “Super Global High Schools.”¹³ These schools are exempt from ministry-set guidelines and are able to administer their own curricula such as teaching mathematics and science through English instruction. Relaxing regulations and increasing funding to hire competent teachers for these elite high schools will allow them to have more autonomy in offering courses that better prepare students for a globalizing society. Second, Japan is facing the issue of rising levels of poverty, which has strong implications on education. According to a joint study by UNICEF and Japan’s National Institute of Population and Social Security Research in 2013, some 14.9 percent of children under the age of 18 live below the poverty line.¹⁴ That is approximately one in six youths. Recent findings from Stanford Graduate School of Education professor Sean Reardon has shown how socioeconomic factors influence student performance in the United States. He concludes that sixth grade students living in the richest school districts are, on average, four grade levels ahead of children who live in the poorest district.¹⁵ If we assume that this association between the level of poverty and educational outcomes holds true in other countries, we expect to see a widening gap in student achievement in Japanese schools.

Gender Gap in Learning Outcomes

There is a notable gap between girls’ and boys’ performance in mathematics and science in Japanese schools.

According to the results of the Organization for Economic Cooperation and Development (OECD)’s 2012 Programme for International Student Assessment (PISA), there is a wide gap between Japanese boys and girls in their learning outcomes.¹⁶ Japanese girls score 18 and 11 points lower than their boy peers in mathematics and science, respectively. Sixteen points is equivalent to about five months of learning.¹⁷ What is startling is that this gender gap is the greatest among the top ten percent, with more than a 28 and 22.4 point difference between boys and girls in mathematics and science, respectively.¹⁸

Girls are lagging behind boys in two of the most important subject areas that have high public and private rates of return. According to the U.S. Department of Commerce, occupations in

Science, Technology, Engineering, and Mathematics (STEM) are expected to grow 17.0 percent from 2008 to 2018, compared to 9.8 percent for non-STEM occupations.¹⁹ In the United States, 39.3 percent of GDP comes from high-technology manufacturing and knowledge-intensive service industries. In Japan, Canada, and the EU, this figure is close to 30 percent.²⁰ Furthermore, STEM careers pay better than non-STEM fields, contributing to individual financial stability and greater opportunities for career development. In the United States, the average salary of an individual who holds a bachelor's degree in a STEM-related field is \$65,000 compared to \$49,500 for an individual who has a bachelor's degree in a non-STEM field.²¹

If Japan wants to improve its record of advancing the status of women, then it is imperative to address the gender gap in schools, especially in mathematics and science. As articulated by the United Nations, access to high-quality education is a human right because education has the potential to change one's opportunities for the better. One viable option is to invest early and consistently in the potential of girls and women by encouraging girls to learn, love, and pursue careers that utilize math and science.

College Admissions Policy

In 2020, Japanese public universities, such as the University of Tokyo, will introduce a new college admissions policy by overhauling its existing centralized college entrance examination.²² MEXT has proposed to introduce two types of national tests for high school students.²³ The first type of assessment will evaluate basic competency and knowledge acquisition in high school.²⁴ This is the equivalent of a high school exit exam. While the details of this reform are being discussed, this type of assessment would be taken by students in the last two years of high school. The results of this competency-based assessment can be submitted to universities and used to write recommendation letters.

The second is the Learning Assessment for applicants. While the content of this assessment is still being finalized, this new assessment will be used to assess each person's problem-solving skills. The purpose of this assessment is to promote learning that focuses on critical thinking skills, ability to make good judgments, and effective communication.²⁵ Another feature of this assessment is that it will assess students not on their memorization skills, but on their ability to come up with solutions and communicate their ideas. This assessment will be offered multiple times a year and will be used in conjunction with university-specific admissions criteria to gain entry into universities.

This new reform in college entrance examination has various implications. The first implication is that it will diversify the kind of learning that happens in school and in afterschool programs. *Juku*, or cram schools, that focused on strategies to ace the entrance examination will become obsolete. Instead, new types of *juku* such as the ones that focus on essay writing, debates, and TOEFL or SAT prep courses will be in greater demand.

The second implication is that this new entrance examination will change the nature of online education. With a stronger emphasis on individual problem-solving skills that cultivate individual interests, students will be encouraged to seek other learning opportunities beyond their regular schools. With greater focus on individual learning, distance or online education makes learning opportunities more diverse and catered to individual needs. This type of learning is also beneficial for those students who have dropped out or are at risk of falling out of the traditional schooling system. One example of this type of online education is the N High School, funded and operated by a merger of Kadokawa (a publishing company) and Dwango (a provider of an online platform).²⁶ Those who graduate from N High School will be able to graduate with a high school degree accredited by MEXT.²⁷ Given the diversification of

educational opportunities, universities will need to recognize and accept students who enroll and obtain credits using alternative forms of high school education.

The third implication is that the greater emphasis on globalization has steered Japan to adopt International Baccalaureate (IB) programs in some high schools. The government has stipulated to increase the number of high schools with IB programs from 16 schools in 2012 to over 200 schools by 2018.²⁸ This shift in policy is a reflection of how the government of Japan is trying to meet the new demands of the 21st century and to internationalize its education programs. This new emphasis on IB programs is also in line with the change in college admissions policy toward greater recognition of internationally accredited programs.

Investment in Pre-Primary Education and Families

Another key issue is the need for further investment in pre-primary education and families. This point is particularly important because it goes hand-in-hand with women's involvement in the labor market.

In 2013, Prime Minister Shinzo Abe launched "Womenomics," a policy that promotes women's participation in the labor market with an aim to boost economic development.²⁹ According to the World Economic Forum, Japan's gender parity is dismal, ranking at 101st out of 145 countries with a gender parity score of 0.67.³⁰ While Japanese women are among the most highly educated in the world, Japan lags behind other countries in achieving gender equality in political and economic dimensions. According to data collected by the World Economic Forum, on average, Japanese women earn 65 percent of what Japanese men earn. Furthermore, only nine percent of senior positions—such as lawmakers, managerial positions in companies, and in the country's parliament—are occupied by women. Women hold only 22 percent of ministerial positions in the Prime Minister's cabinet.³¹ Among women who decide to re-enter the labor market after giving birth, approximately 30 percent of them take part-time positions. These positions are more susceptible to layoffs, leading to economic vulnerability, especially among single-parent households.

There are many reasons for this alarming gender disparity in Japan, ranging from cultural to economic. One very prominent issue related to education is the lack of high-quality childcare facilities around the country. According to the Ministry of Health, Labor, and Welfare, as of 2015 there are approximately 20,000 children who were waitlisted but were not offered a spot at a daycare. Eighty-five percent of them are 0–2 years old.³² Women who desire to get back to the labor market are unable to do so without access to high-quality daycare or nursery schools. This is partly explained by male-centric work environments where there are expectations for employees to work long hours. The government and various companies are beginning to adopt a more holistic view of work-life balance in order to create better conditions for work, raising children, and taking care of elderly family members.³³

These are some of the key issues in education that are being discussed among educators, scholars, and policymakers in Japan. First, the gap in test scores between girls and boys in mathematics and science. This provides a strong rationale to support girls in cultivating their love of and interests in mathematics and science. Second, the reform of the college entrance examination and its implications on traditional and non-traditional learning opportunities such as online education. Third, there is a strong need to invest in early childhood education and families to create a more holistic work-life balance that honors individual choices. There are many other challenges in the Japanese education system, but these are some of the most pressing issues related to education in Japan as we look forward to the near future.

EDUCATION REFORM PROPOSAL RUBRIC

Criteria	1	2	3	Score
Content	Demonstrates little knowledge of topic, or content is incomplete and/or inaccurate	Demonstrates some knowledge of topic; some content is incomplete and/or inaccurate	Demonstrates knowledge of topic; content is complete and accurate	
Organization of Information	Information is presented in an illogical, uninteresting, and/or disorganized format that confuses the audience	Information is presented in a somewhat logical, interesting, and organized format that audience can mostly understand	Information is presented in a logical, interesting, and organized format that audience can understand	
Mechanics	Contains three or more spelling and/or grammatical errors	Contains one or two spelling and/or grammatical errors	Free from spelling and/or grammatical errors	
Presentation	Uses distracting body language; and/or does not speak loudly or clearly; and does not make eye contact with audience	Uses distracting body language; and/or does not speak loudly or clearly; and makes occasional eye contact with audience	Uses appropriate body language; speaks loudly and clearly; and maintains eye contact with audience	

Comments	Total Score

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endnotes

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