

# A COLLABORATIVE EXCHANGE TO IMPROVE EARLY CHILDHOOD EDUCATION OUTCOMES

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## Abstract

*International collaborative research has great value in helping each of the participant's view their respective situations from novel and various perspectives. When people involved in the same work tackle problems from different perspectives, new awareness arises, and innovative solutions are created. Kagawa University and Colorado State University have conducted excellent research exchanges in the field of early childhood education based on their international exchange agreements.*

*As the trend in Japan towards nuclear families continues in tandem with Japan's aging society and low childbirth rate, a number of parents and guardians are becoming increasingly isolated and unsure of how to raise their children. The process of introducing a new childcare support system based on Japan's national policies and the problems Japanese regional prefectural governments face in early childhood education were clarified through exchanges between Kagawa University and Colorado State University. By sharing information and giving an overview concerning efforts and successful cases in Japan and the U.S., mutual clues were found for problem analysis and problem solving.*

*This research analyzed the factors for constructive interaction and provided clues for the problems highlighted by the results. It enabled several researchers in Kagawa who have experience in this field, overseas as well as locally, and those at the prefectural level involved as leaders in professional guidance in this field of childcare, to understand the current situation and trends for childcare in the U.S. This has the potential to lead to improvements in the quality of childcare and the training of teachers in Japan. It also put forward a direction and recommendations for development in international collaborative research.*

**Keywords:** *collaborative exchange, childcare, early childhood education, international collaboration*

## Introduction

International collaborative research is extremely valuable as it can lead to useful suggestions and better solutions by grasping problems from multiple perspectives from the unique approach of researchers and various perspectives. The volume of research papers, which is the output of research activities around the world, is consistently increasing. According to the U.S. National Institute of Science and Technology Policy (NISTP, 2018), the number of internationally co-authored papers has increased since the 1980s (as of 2016, the ratio of domestic papers was 73.1% and that of internationally co-authored papers was 26.9%), and it is considered that knowledge production activities are being carried out across national borders. In other words, research activities themselves are changing from single-country activities to joint activities involving multiple countries.

Major countries participating in the international cerebral circulation emphasize the promotion of international joint research and the establishment of an international research network for their own researchers and focus on the international development of science and technology. Budgets for international collaborative research are increasing in most/many countries. In 2016 (publishing year, PY), the international co-authorship rate was 66.3% in the United Kingdom, 62.8% in France, 59.7% in Germany, 43.5% in the United States, and 33.4% in Japan. Japan's international co-authorship rate increased by about 28 points compared to the first half of the 1980s, but still tends to be lower than in other developed countries. It is necessary to activate science and technology activities in order to realize innovation.

Unfortunately, Japan has a background of low international mobility of human resources and knowledge and the rate of increase in the number of internationally co-authored papers in Japan is lower than in other major countries. It is stated that the five years of the Sixth Science and Technology Basic Plan (2021 to 2025, PY) will maintain and strengthen Japan's international competitiveness through the strategic international expansion of science and technology. From the perspective of improving research capabilities, it is necessary for the 6th Science and Technology Basic Plan to clearly position strategic international expansion as one of the pillars of the overall basic plan and to set individual items. Furthermore, the Japanese Ministry of Education, Culture, Sports, Science and Technology (henceforth, MEXT) has indicated that the idea and content need to be detail (MEXT, 2019).

In promoting science and technology education and research, it is important to have a global perspective on the analysis of international trends and to secure a perspective that will work strategically while conducting international expansion. In other words, further promotion of international joint research will play an important role in the development of science and technology education and research.

Against this background, examples of international exchange research and activities at higher education institutions that led to model cases and/or good practice of academic research and regional contributions are of value, and suggest effective international strategies for higher education institutions based on national policies. The purpose is to clarify that the formation of international networks and international joint research teams will be promoted, and to clarify the significance of promoting international joint research by higher education institutions.

Early childhood education in Japan has reached various turning points institutionally over the last five years. In the midst of changes in social conditions such as urbanization, the increase of nuclear families, the declining birthrate, and the information society, it has been pointed out that the number of parents who worry about raising their children and feel isolated is increasing. Today's early childhood education programs address the issues of parents who are worried about how to become involved with their children and those who are experiencing a sense of isolation in the midst of changing social conditions. Therefore, in kindergartens, childcare support is required so that parents' anxieties and stresses about childcare can be lessened and they can regain their joy and purpose of life and realize better outcomes for their children (MEXT, 2008).

Research objectives and questions on the issue of early childhood education are reviewed. The process of introducing new childcare support systems in Japan based on its national policies and the problems Japanese regional prefectural governments face in early childhood education are clarified. Also, the international strategy of Kagawa University and the current situation of international exchanges at its Faculty of Education are introduced. The importance of building an international strategy as a university is clarified. In particular, collaboration on early childhood education and the results of a Fulbright Specialist Program are introduced. Factors for constructive interaction between two universities are analyzed and these give clues to achieving solutions to the problems highlighted. In conclusion, such collaborative international research points forward to a direction and recommendations for developments in this field.

### *Research Purpose and Questions*

The purpose of the research is to clarify that the systematic promotion of international strategies at higher education institutions promoted the formation of international networks and international collaborative research teams, and at the same time, contributed to higher education. It clarified the importance of promoting international joint research by higher education institutions by exemplifying an example of solving regional problems of early childhood education. The following three questions explored that purpose.

- 1) What are the effective ways to promote sustainable international research?
- 2) How to develop diverse perspectives in early childhood education through collaborative research?
- 3) What can be suggested from the cases brought about by cooperative international exchange?

### **Research Methodology**

This research project used a Participatory Action Research method to elucidate information aiming to resolve problems in early childhood education in Kagawa prefecture in Japan and the state of Colorado in the United States. Action research is defined as a disciplined process of inquiry conducted by and for those taking the action. In order to find effective ways to promote sustainable international joint research and foster diverse perspectives in early childhood education, this research integrated qualitative methods, such as analysis of policies promoted by the MEXT. In addition, interviews based on a problem-solving system were conducted in a cycle of problem-finding, analysis, and presentation of solutions. In the process of interviewing the persons in charge of early childhood education at the Kagawa prefecture governmental level, documentation, memos, and data were retrieved and then analyzed.

### **Problems in Early Childhood Education in Japan**

Early childhood education in Japan has reached various turning points institutionally. In 2015, the Cabinet Office implemented a new system for supporting children and childcare. Since then, the government has been working to improve the quantity and quality of early childhood education, childcare, and childcare support, such as enhancing the arrangements for receiving childcare at home and in the community and improving the treatment of childcare workers. In October 2019, free early childhood education and childcare began. In its supplementary provisions, the Childcare Support Law takes into consideration the status of enforcement of the law, and if deemed necessary, considers it, and takes necessary measures based on the results (Prime Minister of Japan and His Cabinet, Dec 2019).

Behind the enactment of the Childcare Support Law in 2015, it was thought that early childhood education in Japan had many issues (Prime Minister of Japan and His Cabinet, April 2015). These issues included Japan's fertility rate and birthrate that has declined dramatically due to an increase in the number of unmarried people, the later age at which people marry, and the decline in the fecundity of married couples. The total fertility rate in 2011 was 1.39 children per woman. In addition, due to the possible unstable social environment surrounding children in the future and the current situation where it is difficult to balance family commitments with work, people's traditional expectations for marriage, child-rearing, and childcare are changing. The quality and quantity of childcare support is insufficient, especially when compared with other countries. For example, family-related social GDP spending is only 1.04% in Japan, whereas it is 3.00% in France, and 3.35% in both the UK and Sweden. There is a sense of isolation in

parenting due to financial burdens and lack of support through childcare. In Japan, women in their 30s leave their jobs, due to factors such as a lack of childcare facilities, waiting lists because of a lack of human resources, and a lack of activities for children after school, which results in the so-called M-Curve phenomenon in which the female labor force participation rate of that age group decreases. In response to this situation, the government proposed providing high-quality early education through the comprehensive provision of childcare, including increasing and securing the amount of childcare available, improving the quality of education and childcare, eliminating waiting lists, and supporting childcare in the community.

In 2018, the Ministry of Education, Culture, Sports, Science and Technology highlighted efforts to improve the specialization of childcare for kindergarten teachers, acknowledging that support for activities other than the curriculum, such as childcare and childcare support, is increasing. Now that the steady implementation of the new kindergarten education guidelines is required, the specialization of childcare for kindergarten teachers is being improved and strategies to support this improvement must be identified. Further, with many young teachers leaving their jobs, it is important to identify the kinds of measures needed to train and secure highly-qualified kindergarten teachers with abundant experience in the specialization.

Further, there is an emphasis on developing and improving the operation of kindergartens, leading to an interest in the kinds of measures that can be considered in order to ensure the uniqueness of each kindergarten, improving and developing the operation of each kindergarten and guaranteeing and improving the national education level.

This leads to the importance of efforts to build and utilize a promotion system for local public organizations to improve the quality of early childhood education in the region. The question is then asked, what kind of promotion system can local public organizations build and how can they be used to improve the quality of early childhood education in regions that transcend national, public and private categories and facility types? Further, it must be considered how to incorporate those who have expertise in early childhood education to provide guidance and advice in this endeavor. Finally, it is important to consider measures that are necessary to support families and local stakeholders as they deepen their understanding of early childhood education. That is, what are the strategies needed to widely disseminate the value of early childhood education to homes and communities (MEXT, 14 June 2018).

## **Exploring Diverse Perspectives of Early Childhood Education through Collaborative Exchange**

### *The Japanese Government's Strategies for International Exchanges and those of Kagawa University*

In Japan, globalization is progressing in many aspects of society. Japanese universities are also promoting internationalization of their educational content and environments, aiming at developing global leaders who have both global and local perspectives and who will be able to play an active role on the world stage. The human resources developed in this way will also be responsible for revitalizing local communities. In other words, it is required to promote effective efforts based on the characteristics and policies of the universities, the fields of education and research, and the diversity of students. In order to carry out internationalization and create an educational environment for universities that can compete with the rest of the world, in 2008 the Japanese government aims to double the number of Japanese students studying abroad from 60,000 to 120,000. It was also decided to aim to increase the number of foreign students coming to Japan to 300,000. English was introduced as a subject at elementary school for the purpose of further enhancing education corresponding to globalization from the elementary to the secondary education stage (Prime Minister of Japan and His Cabinet, 2019, MEXT, 21 May

2019). As a result, in 2018 the goal of having 300,000 foreign students studying in Japan was achieved. In addition, the number of Japanese students going abroad which had been sluggish for a number of years, has been on an upward trend over the past five years (pre Covid-19).

Since 2004, the National University Corporation Law has obliged universities to formulate a medium-term plan and an annual plan based on the six-year medium-term target set by the Minister of Education, Culture, Sports, Science and Technology. Currently, the third medium-term target period (2016-2021) is underway. Kagawa University has set one of its goals in education as creating “professionals with a rich humanity and high morals, a wide basic knowledge and high level of professionalism and ability to investigate issues and those who can make contribution internationally.” With this in mind, the university has promoted academic and cultural exchange links with overseas institutions and aims to create as active links as possible (from the University Constitution Charter of 26 March 2007).

Even in the Faculty of Education of Kagawa University, “international contribution” is always taken up as one of the important matters when advancing undergraduate education, graduate school education and research activities. The university’s “4 & 1 Program” was a goal set in 2013 with the aim of promoting the globalization of Kagawa University. The goal was that in FY 2021, 400 international students would be accepted to study at the university and students that are dispatched (Lim, 2014). The aim was to have 100 Kagawa University students study abroad for 3 months or more. This 4 & 1 Program is also listed as a priority item for Kagawa University in its 3rd Medium-Term Goals and Medium-Term Plan (National University Corporation Law, 2003, Enforcement date; 2020). The 4 & 1 Program aims to increase the dispatch and acceptance of international students, and includes launching overseas dispatch support projects, employment of global human resources in regional companies, cooperation with regional companies, cooperation with regional events and international projects. It has achieved good results.

#### *The Faculty of Education’s International Exchanges with the Early Childhood Center, CSU*

As of June 2020, Kagawa University had concluded academic exchange agreements with 99 overseas institutions of higher education. At Kagawa University, each international exchange agreement has a department in charge of effective exchange responsibilities. Under the chairmanship of the Faculty of Education, Kagawa University and Colorado State University (CSU) in the United States of America concluded an Academic Exchange Agreement on October 8, 2002, centering on researcher exchange. Since then, the university has invited researchers from the university every year to promote exchange activities and joint research with the school attached to the university.

The joint research between Kagawa University and Colorado State University has a wealth of experience in various fields. Among these, exchanges with the CSU Early Childhood Center (ECC) began in 2010 and continue to the present.

The ECC is a laboratory school within the Department of Human Development and Family Studies, with three roles of education, research, and service. The ECC is licensed by the State of Colorado Department of Human Services and is accredited by National Association for the Education of Young Children. The ECC provides high quality programming for infants, toddlers, and preschoolers; trains CSU students for careers in the field of early childhood; and promotes research about children, families and early childhood education. The programs implemented at the ECC ensure that the program provides children and their educators with the best learning experience by meeting national quality standards.

The ECC is a school inspired by Reggio Emilia, offering a play-based, constructivist approach to educating young children. This Reggio approach (Biroli et al., 2018) strives



to develop a learning community that works on co-building knowledge in the context of collaboration between parents, children and teachers.

In 2010, exchange between the two universities began with a courtesy visit to the ECC by the person in charge of the exchange. After that, an exchange program for long-term international students from Kagawa University to attend classes offered at the ECC started (2 students) started. Since March 2011, there has also been a short-term study abroad program (held once a year) supported by the JASSO support program. Many Kagawa University faculties and staff, including four deans, have visited CSU. In Japan, a week-long research exchange was held with the director of the attached kindergarten to learn the Reggio approach, which has not been implemented often in Japan.

### *Exploring Early Childhood Education through Collaborative Exchange*

One method for promoting international joint research led by higher education institutions are measures that connect organized international strategies to international educational activities that are also effective in promoting interdisciplinary research, such as SDGs. In May 2019, as part of the faculty's exchanges with Colorado State University, a Fulbright Special Program application was jointly submitted by the United States and Japan. It was accepted, and a two-week program was able to be implemented.

The objectives of the proposed joint research included the delivery of a seminar for early childhood teachers and specialist staff at prefectural childhood education centers, a lecture at the graduate and undergraduate level at Kagawa University, assistance in developing Kagawa University teacher training curricula, and consultation on faculty development.

In order to help with reform at Kagawa University's graduate courses, Kagawa University invited the Fulbright Specialist to hold seminars for faculty members and staff of the Faculty of Education and at the Kagawa University Graduate School of Education in order to create a novel and effective curriculum for the Early Childhood Education Course specializing in teaching, and give advice on effective course creation based on educational comparisons between Japan and the United States. In addition, Kagawa University invited the Fulbright Specialist to provide lectures to Kagawa University undergraduate students and graduate students from a professional point of view.

In the joint program, the Fulbright Specialist visited kindergartens, was able to observe instructional methods implemented by early childhood education teachers in Kagawa prefecture, and exchanged opinions and information with specialists in the field at the prefectural office level. These exchanges and collaborations provided ideas that have the potential to lead to improvements in the issues facing early childhood education in the prefecture.

In addition, the Fulbright Specialist provided a lecture to Kagawa University undergraduate students about the three-fold mission of the ECC, the importance of school readiness in the U.S., and the perspectives of parents and teachers around expectations for school readiness at kindergarten entry. This lecture focused on her work in Colorado in early childhood education and this provided our students with a deeper insight into the field and its related issues.

The collaboration and exchange of information between the Specialist and researchers at Kagawa University on the various early childhood education styles in the U.S. has promoted ideas for areas for improvement or development here in Kagawa. As well, the Specialist took back to the U.S. many ideas about new ways to implement curricula and strategies in early care and education.

The most important outcome that was achieved because of this project is the establishment of relationships that will promote further collaboration between Kagawa University, the Specialist, and Colorado State University.

When the Fulbright Specialist lectured at the undergraduate level at Kagawa University, student feedback was very positive, and many students stated that they were impressed by CSU, ECC, and the Specialist's research practices. This lecture also increased student awareness of early childhood education in the U.S. and the opportunities for exchanges in the U.S. Many of the students in the class are interested in teaching kindergarten and elementary school.

The Fulbright Specialist also exchanged ideas on a range of topics with the Kagawa prefectural Board of Education and prefectural child supervisors. As with Japan in general, in Kagawa prefecture the trend towards nuclear families continues and, together with an aging society and low childbirth rate, has caused a number of parents and guardians to become isolated and feel unsure of how to raise their children. There is also the stress of achieving a good balance between work and life. The Ministry of Education, Culture, Sports, Science and Technology here in Japan (MEXT) has four logic models on the accredited children centers system, the promotion project for child rearing in kindergarten, the promotion project for day care and the promotion project for after school classroom for children, and has analyzed the project's effectiveness and issues. The Specialist shared successful parent education/parent support strategies implemented in the U.S. with representatives from the prefectural government office. Specifically, she shared about the successful implementation of *The Incredible Years* (Webster-Stratton & Reid, 2010) in her community. *The Incredible Years* is a series of inter-related, evidence-based programming for parents, children, and teachers which has been rigorously researched for more than 30 years.

#### *Logic Models in Colorado - BE READY*

Similar to Japan's four logic models, in Colorado the BE READY school readiness campaign is a collaborative effort that came together for the purpose of ensuring that all children in the community enter school ready to succeed (BE READY, 2020). The vision of BE READY is that "All children in Larimer County will be successful in school." The mission of BE READY has 4 dimensions that are important for childhood success: Ready Children, Ready Families, Ready Schools and Ready Community programs. The BE READY Campaign distributes messages about school readiness in each of these three areas: Language and Learning, Feelings and Behavior, and Health and Activity and the website (<https://bereadylarimercounty.org/>) has detailed information and resources for these multiple dimensions.

Kindergarten in the U.S. is for children who are 5 years old and is considered the beginning of formal schooling. In addition to helping families learn about school readiness, another goal of BE READY is to align expectations for school readiness across all members of the community. In Colorado, state standards exist that guide expectations for children's learning (Colorado Department of Education, 2020). These standards help teachers know what to teach children and guide teachers about what children need for kindergarten.

BE READY partners discussed ways to better support kindergarten transition and wanted to know exactly what the expectations were, so 800 surveys were administered to preschool teachers, kindergarten teachers, and parents of preschoolers. The survey asked parents and teachers what was more important: Academic skills or social skills when a child was entering kindergarten? It was surprising to find that both kindergarten teachers and parents of children who were entering kindergarten were more likely to identify both academic and social skills as being of equal value (ranging from 75%-85%) (Schimke, 2017). Ultimately, the research revealed that parents and teachers both had a strong commitment to children's success, but there was a lot of variability in response within and across groups: parents and teachers answered very differently about what constituted optimal school readiness.

Based upon the survey results, the BE READY Campaign developed a guide to help better support the transition to kindergarten. This guide is now distributed throughout Larimer

County and was supported through the collaboration with all three public school districts (BE READY, 2020; Schimke, 2017).

The Fulbright Specialist met with experts in Kagawa dealing with similar issues as those dealt with in the BE READY Campaign and was able to communicate her experiences in setting up a child-centered system. These discussions included explaining the Early Childhood Center at Colorado State University and its three-fold mission of teaching, research, and service; providing information about the differences between kindergartens in the U.S. and Japan; as well as the importance of the transition to kindergarten in the U.S. Data was introduced concerning U.S. parent and teachers' views of expectations for social and academic skills upon kindergarten entry. The BE READY kindergarten readiness guide, that the Specialist was instrumental in developing, was also introduced and discussed. Although there are differences in the programs, and immediate change is not possible, it was inspiring to discuss the long-term benefits of these efforts. Both parties expressed intent to continue this exchange of information.

### *A New Way to Promote International Exchange*

Research cooperation is essential in solving contemporary problems. In particular, international collaborative research benefits both researchers and related organizations, and enhances the quality of research. For example, if a researcher from a new university less than 50 years old and a researcher from a famous university more than 100 years old publish internationally co-authored papers, the papers published by researchers from both universities will benefit. The increase in citations per paper (CPP) by 0.73-4.12 indicates that both institutions benefit from international co-authorship (Khor, 2016).

Ordinary international collaborative research is often derived from exchanges between researchers in the same research field, such as between former colleagues, mentors, students, and postdoctoral graduates (Murakami, 2016).

International joint research that arises from such relations tends to be mostly research that makes use of similar expertise. When solving strategic problems unique to a university or problem-solving issues found in communities, it is possible to encounter problems with limited human resources and funds, and encounter problems between existing specialties. These are often numerous, and there are limits as to what can be done with an approach based solely on international joint research from such exchanges between similar outlooks.

Kagawa University has developed an international strategy based on international exchanges which lead to the acquisition of external funds, such as Fulbright scholarships and JASSO, and in the form of university links aimed at solving strategic problems in both partners' respective regions.

The sharing of information on early childhood education in Kagawa prefecture and successful cases in the U.S. provided mutual clues for problem analysis and solutions, and an increased understanding of the current situations and trends for childcare in both countries, with the potential to lead to improvements in the quality of childcare and the training of teachers in Japan. Data collected in the U.S. was presented at Kagawa University comparing U.S. parent and teacher expectations for social and academic skills upon kindergarten entry. This data led to the development of a kindergarten readiness guide that was also discussed at Kagawa. From a developmental/educational perspective, an interesting outcome of the Fulbright Program was evidenced at the ECC at CSU. While away, the Specialist stayed in close contact with the ECC children via email, sending photos and information from her travels and experiences in Japan. Their teacher compiled a book that encouraged the children to think about how Japan and the United States are similar and different. During her time in Japan the children sent the Fulbright Specialist multiple emails with comments and questions about her experiences. Upon the Specialist's return to the United States, she met with the class and went over the information she had shared with them and was able to continue the dialogue about life in Japan.



It is important for those who build an international strategy to reach it, and it is of great significance to disclose the method. In addition, it is one of sustainable and noble ways of international exchange that should be promoted, as universities propose clues to solve the problems that the local government has when making a regional contribution as a strategy.

## Conclusions and Implications

It is clear that, as a measure for advancing sustainable international research, universities and faculties can promote exchange between researchers who may not have similar research fields, as in this case. In the context of this project, one can see that the problems facing early childhood education in Japan and the U.S. are universal. The Fulbright Specialist's knowledge helped develop early childhood education in Kagawa and her research in Kagawa also helped her develop insights into her field of research and specialization. The sharing of information on early childhood education between specialists in Kagawa prefecture and Colorado provided mutual clues for problem analysis and solutions between two participants that had no previous contact.

The systematic promotion of international strategies at higher education institutions can promote the formation of networks and collaborative research teams between different countries. At the same time, it can contribute to higher education. For those who formulate international strategies, it is necessary to consider promoting exchanges that include collaboration between researchers, as well as contact with local experts and lectures to local students. It can also provide great insights into problems faced by various regions.

The factor which proved essential in the constructive interaction of this program was the on-going sustainable links between the two institutions which expanded from initial exchange programs to collaborative research. Further results can be expected and should be developed based on the progress achieved so far. Subsequent policy decisions and ongoing research should be undertaken to build and provide further outcomes with these points in mind.

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## References

- BE READY. (2020). *Kindergarten*. United Way of Larimer County. <https://bereadylarimercounty.org/kindergarten/>
- BE READY. (2020). *School readiness is more than the ABC's, and it begins at birth*. <https://bereadylarimercounty.org/>
- Biroli, P., Boca, D. D., Heckman, J. J., Heckman, L. P., Koh, Y. K., Kuperman, S., Moktan, S., Pronzato, C. D., & Ziff, A. L. (2018). Evaluation of the Reggio Approach to Early Education. *Research in Economics*, 72(1), 1–32. <https://doi.org/10.1016/j.rie.2017.05.006>
- Colorado Department of Education. (2020). *Colorado academic standards for preschool*. <https://www.cde.state.co.us/early/preschoolstandardsresources>
- Colorado Department of Education. (2020). *Colorado state standards – academic standards*. <https://www.cde.state.co.us/standardsandinstruction/coloradostandards-academicstandards>
- Colorado State University Early Childhood Center. (2020). *Early Childhood Center*. <https://www.chhs.colostate.edu/ecc>
- Khor, K. A., & Yu L.-G. (2016). Influence of international co-authorship on the research citation impact of young universities. *Scientometrics*, 107, 1095–1110. <https://doi.org/10.1007/s11192-016-1905-6>
- Lim, L. (2014). *4 & 1 Plan (Efforts for Accepting 400 international students / Dispatching 100 Japanese students) Progress Report*, Annual Report of KUIO, 6, 3–4.

- Ministry of Education, Culture, Sports, Science and Technology, Japan. (2008). *Training on child care support in kindergartens – For the preparation of training programs*. [https://www.mext.go.jp/a\\_menu/shotou/youchien/1258019.htm](https://www.mext.go.jp/a_menu/shotou/youchien/1258019.htm)
- Ministry of Education, Culture, Sports, Science and Technology, Japan. (2018, June 14). *Current status of early childhood education*. [https://www.mext.go.jp/b\\_menu/shingi/chousa/shotou/140/shiryo/\\_icsFiles/afildfile/2018/06/14/1405946\\_5.pdf](https://www.mext.go.jp/b_menu/shingi/chousa/shotou/140/shiryo/_icsFiles/afildfile/2018/06/14/1405946_5.pdf)
- Ministry of Education, Culture, Sports, Science and Technology, Japan. (2019). *Recommendations for the 6th Science and Technology Basic Plan*. [https://www.mext.go.jp/component/b\\_menu/shingi/toushin/icsFiles/afildfile/2019/07/18/1418828\\_2.pdf](https://www.mext.go.jp/component/b_menu/shingi/toushin/icsFiles/afildfile/2019/07/18/1418828_2.pdf)
- Ministry of Education, Culture, Sports, Science and Technology, Japan. (2019.) *Importance of global human resource development at higher institutions* [https://www.mext.go.jp/kaigisiryō/2019/05/icsFiles/afildfile/2019/05/21/1416597\\_04.pdf](https://www.mext.go.jp/kaigisiryō/2019/05/icsFiles/afildfile/2019/05/21/1416597_04.pdf)
- National Association for the Education of Young Children. (2020). *Accreditation*. <https://www.naeyc.org/accreditation>
- National Institute of Science and Technology Policy, Japan. (2019). *Science and Technology Indicators April 1, 2018. Quantitative and qualitative changes in world research activities*. [https://www.nistep.go.jp/sti\\_indicator/2019/RM283\\_41.html](https://www.nistep.go.jp/sti_indicator/2019/RM283_41.html)
- National University Corporation Law (2003, Number of the Law 112, Enforcement date April 1, 2020). [https://elaws.egov.go.jp/search/elawsSearch/elaws\\_search/lsg0500/detail?lawId=415AC0000000112](https://elaws.egov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=415AC0000000112)
- Prime Minister of Japan and His Cabinet. (2015, April). *Outline of the response policy for the review five years after the implementation of the new system of support for children and child-rearing*. [https://www8.cao.go.jp/shoushi/shinseido/meeting/kodomo\\_kosodate/k\\_50/pdf/ref1.pdf](https://www8.cao.go.jp/shoushi/shinseido/meeting/kodomo_kosodate/k_50/pdf/ref1.pdf)
- Prime Minister of Japan and His Cabinet. (2019). *University Education and Global Human Resource Development for the Future (Third Proposal)*. <https://www.kantei.go.jp/jp/singi/kyouikusaiei/teigen.html>
- Prime Minister of Japan and His Cabinet. (2019, December). *Outline of the response policy for the review five years after the implementation of the new system of support for children and child-rearing*. [https://www8.cao.go.jp/shoushi/shinseido/meeting/kodomo\\_kosodate/k\\_50/pdf/ref1.pdf](https://www8.cao.go.jp/shoushi/shinseido/meeting/kodomo_kosodate/k_50/pdf/ref1.pdf)
- Murakami, Y. (2016). A review of studies on international collaborative research and their implications for Japanese policy. *JSTPM*, 31(2), 130-144.
- Schimke, A. (2017, October 19). *What do children need to know when they start kindergarten? You might be surprised*. Chalkbeat. <https://co.chalkbeat.org/2017/10/19/21103544/what-do-children-need-to-know-when-they-start-kindergarten-you-might-be-surprised>
- Webster-Stratton, C., & Reid, M. J. (2010). Addressing multiple risk factors to improve school readiness and prevent conduct problems in young children. In S. L. Christenson & A. L. Reschly (Eds.), *Handbook on school-family partnerships*. (pp. 204-227). Routledge/Taylor and Francis.
- Wurm, J. P., & Genishi, C. (2005). *Working in the Reggio way: A beginner's guide for American teachers* (Illustrated ed.). Redleaf Press.

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