

# Primary School Sexuality Relationships Education in Japan-A Collaborative, Qualitative Study

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## Abstract

**Background:** In recent years, primary schools have provided collaborative Sexuality and Relationships Education in cooperation with external providers such as health professionals. However, there has been little literature about primary school students' learning through the collaborative Sexuality and Relationships Education Programs, especially from the point of view of children. The purpose of this study was to explore the learning of the fourth graders in primary school who have been taught Sexuality and Relationships Education under the cooperation of midwives, the school nurse and school teachers.

**Methods:** After providing the collaborative Sexuality and Relationships Education Programs to students, open-ended questionnaires were distributed. Inductive qualitative content analysis was undertaken for examining students' description.

**Results:** Nine sub-categories, four categories, and two themes were identified. Fourth grade students understood physical, emotional, and social changes associated with puberty from the viewpoint of "Fundamental aspects of growth and development, and diversity", and "Development of reproductive functions". In addition, students comprehended the life from the point of view of "Conception, pregnancy, and childbirth", and "The importance of relationships and life".

**Conclusion:** Through experiences of taking the collaborative Sexuality and Relationships Education Programs, the fourth graders in primary school developed: an understanding of health and development of puberty and of importance of respecting and thinking of others. The growth and development related to the mechanisms behind reproductive physiology during puberty need to be prospectively provided with evidence considering students' needs and developmental stages. Furthermore, the evidence cannot just be simply stated; it is necessary to associate it with students' life experiences and relationships with others, and for classes to be provided in various methods to encourage creative thinking.

## Introduction

For health education at primary schools, it is important that students learn the necessary lifestyle habits, attitudes, and knowledge, not only for them now, but also for their future health, and the health education should be based on a close relationship with education and health organization [1]. Also, students so far have been provided with health education that concerns recommended health activities such as proper fitness [2,3], personal hygiene [4], proper nutrition [5], and weight gain prevention [6,7]. In addition, it has also been recommended that health education programs include life skills education and emotional intelligence education that promotes mental and social well-being, such as bullying, violence, and abuse prevention [8-10].

It is also ideal that education about sexuality and relationships (Sexuality and Relationships Education; SRE) also be included in these kinds of health education programs, and that it is provided using comprehensive methods before students arrive at puberty. However, according to a review of comprehensive sexuality education in 48 countries, despite government commitments, there is still a gap between policies and practices, and that school curricula and the skills of educators need to be strengthened [1]. During the transition to adulthood, children at puberty experience growth and development such as changes in weight, height, muscle mass, and body fat

distribution, as well as complicated neuroendocrine changes that bring about the maturation of the sexual and reproductive system. In economically developed societies, this process begins around 10 for girls and 12 for boys [11]. In addition to the physical changes of puberty, there are notable social changes, especially given that pubertal changes in physical appearance tend to elicit changes in treatment from peers and family members, including increased rules and expectations from family, increased standing and expectations of maturity among same-sex peers, and increased sexual testing, solicitation, and harassment from other-sex peers [12]. In order to make these physical, mental, and social changes smoothly, many countries prospectively provide SRE in primary schools before students

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**Citation:** Kimura C, Sonobe M, Ikeda M, Azuma T, Hamasaka M, et al. (2018) Primary School Sexuality Relationships Education in Japan-A Collaborative, Qualitative Study. Int J Nurs Clin Pract 5: 272. doi: <https://doi.org/10.15344/2394-4978/2018/272>

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arrive at puberty [13, 14]. SRE in Japan, based on knowledge about their own process of growth and development as well as knowledge for balanced healthy daily life including diet, physical activity, enough rest, sleep and personal hygiene which was studied by younger grades, is taught to middle grades with a focus on human sexuality, including growth and development in puberty, sexual anatomy and physiology, reproduction, conception, pregnancy and childbirth, family life and interpersonal relationships and non-discrimination [15].

According to previous research that looked at SRE in primary schools, the effects were judged positively by school teachers and school nurses [16, 17], but issues were identified such as situations where many primary school teachers had difficulty teaching these topics [18, 19], organizational and structural barriers in the school system [20], and a lack of communication between schools and families [21].

In an attempt to solve the above problems, in recent years there are schools which have invited sexual health professionals such as midwives, obstetricians, and other health care providers from external institutions to conduct collaborative SRE programs [22]. We expect that the introduction of external professionals will provide comprehensive and high quality sexuality education, but there is still a shortage of writings and evaluations of the contents of this kind of education.

The purpose of this research is to evaluate the learning of mid-grade primary school students who have taken SRE under the cooperation of midwives as external providers of sexuality education and school teachers, from the perspective of the students. If it becomes clear what mid-grade elementary school students gain from collaborative SRE, midwives and school teachers not only can understand what the students learned through this education, but can reconsider the methodology, the relationship with other subjects such as science and moral educations, and the continuity of SRE taught to lower and higher grades. In addition, they can find specific examples regarding what kind of support is needed for helping students make the transition to a healthy adolescence and adulthood.

## Purpose

The purpose of this research is to evaluate the learning of mid-grade elementary school students who have taken SRE under the cooperation of midwives and school teachers from the perspective of the students.

## Methods

### Design and setting

Qualitative and exploratory approach using content analysis. As external providers, the research team selected a public primary school in the suburbs of Tokyo as a location of research which provide collaborative SRE for fourth graders.

### Participants

356 mid-grade primary school students (fourth graders) who have taken collaborative SRE.

## Development of the collaborative SRE program

First, we developed the collaborative SRE program for fourth grade students (Table 1). As external providers, and along with the school nurse and school teachers, we reviewed the content of the Education guidelines for primary schools [15] by Japan's Ministry of Education for mid-grade students, the guidelines for sexuality education in the Tokyo area [23], and textbooks used by public primary schools [24]. Next, we decided on the content of the SRE program using the topics and learning objectives of the age group of Level II (ages 9-12) in UNESCO's International Technical Guidance (2009) [25] as reference.

Contents	Person in charge
1) Introduction	CK
2) Human reproduction	NH
3) Fetal growth/ development	MH
4) Pregnancy, labor and birth	NH & MH
5) Newborn, infant and child growth and development	MI
6) Puberty: changes/ signs of a body	MI & MS
7) Friendship and respect	CK
8) Question and answers, summary	CK

Table 1: Contents of the collaborative SRE program.

## Conducting the collaborative SRE program and data collection

**Data collection period:** Data were collected from 2013 through 2016. Collaborative SRE was provided once per year, in January.

**Data collection:** Collaborative SRE was conducted as part of health and physical education classes. Consent was obtained from both the Board of Education in the municipality with jurisdiction over the targeted primary school as well as the principal of the said primary school. Then, the researchers shared information with the school nurse who served as the gate-keeper of the study regarding considerations made to specific students' circumstances. This information related to physical, mental, and social high-risk conditions, such as physical disabilities, developmental and cognitive problems, and insufficient parental care. The SRE program was conducted in turns by five midwives, with the school nurse serving as class facilitator. Each of these played different roles during the class in an interactive way. Three homeroom teachers observed the students and helped in provision of the program. The program lasted 135 minutes and was open for observation by parents and guardians who wished to attend. After the program was completed, the students were requested to respond to the open-ended questionnaire which first asked their impression of the program, what they learned, and what they felt, with some examples of the following questions: 1) physical growth and changes, 2) the beginning of life and growth and development from the fetal period to childhood, and 3) considering people around them including parent, relatives and friends. The questionnaire sheets were collected two weeks after distribution.

## Data analysis

Data were subject to a inductive qualitative content analysis through the preparation, organizing, and abstracting phase with reference to the procedure outlined by the previous study [26] (Table 2).

1. Preparation phase
1) Careful reading each response
2) Copying each response verbatim into a word-processing program
3) Creating analytical data
(1) Selecting the unit expressing students' learning from the data that was inputted by separating each sentence and then editing by integrating terms spelled using different characters ( <i>kana and kanji in Japanese</i> ) but which had the same meaning.
(2) Sharing the above units selection by two researchers (CK & MS).
4) Making sense of the data and whole
(1) Discussing meaning of the data and whole by two researchers (CK & MS)
(2) Sharing meaning of the data and whole by the research team
2. Organizing phase
1) Open coding for the unit expressing students' learning
(1) Identifying and encoding sentences and key words that indicated meaningful student's learning
(2) Sharing codes by two researchers (CK & MS)
(3) Developing coding sheets
(4) Sharing the coding sheets by two researchers (CK & MS)
2) Grouping codes with similar meanings by two researchers separately
3) Discussing the coded groups by two researchers (CK & MS)
4) Developing sub- categories
Comparing and sharing sub- categories by two researchers (CK & MS): Re-reading all codes, comparing and organizing similar codes, and developing sub-categories
5) Throughout the above process, developing categories through condensing the statements
3. Abstracting

Table 2: Preparation, organizing and resulting phases of the content analysis in this study.

## Rigor

The rigor of this study was confirmed by establishing its credibility, dependability, confirmability, transferability, and authenticity [27]. Credibility was guaranteed through checks performed of the categories and sub-categories by the school nurses and the students' homeroom teachers. Transferability was confirmed by reviewing studies [2, 28, 29 ] related to children learning about health related issues other than sexuality and relationships and then comparing their results to the results of the present study, after which descriptive data was provided for readers to assess the applicability of the data in different contexts. Dependability was confirmed by having two researchers who were experienced in qualitative studies carefully examine the entire data analysis process. This was supervised by researchers who were proficient in content analysis. Confirmability was confirmed by storing a record of decisions made regarding all procedures used in the analytical process, including records of critiques of previous research and data analysis used on the descriptive contents and reflections that were input into the word-processing program verbatim from the transcripts. Authenticity was ensured by the researchers repeatedly reading the children's descriptive data, considering preliminary themes, and quoting representative of the children's significant meaningful statements in the sub-categories as descriptive data.

## Ethical Considerations

This study was approved by the Institutional Review Board of the university to which the principle investigator is affiliated. The researchers used the following procedures to protect the participants from adverse events: (1) Prior to the interviews, the students were provided with both oral and written explanations of the objectives and procedures of the study. Oral consent was obtained from all of the students and written consent was obtained from their parents/guardians. (2) Explanations of the participants' rights were provided to both the students and their parents/guardians. Specifically, they were informed that participation was of their own free will, they were provided with explanations of the methods by which confidentiality and privacy would be protected, they were informed that they had the right not to respond to questions and that they had the right to discontinue participation in the study at any time. (3) The participants and their parents/guardians were informed that the study results could be published in the future.

## Results

### Background of the study participants

#### Participants' characteristics

The study participants were a total of 356 individuals, consisting of 181 male and 175 female fourth-grade primary school students (2013: 45 males, 53 females; 2014: 45 males, 42 females; 2015: 42 males, 43 females; 2016: 49 males, 37 females). Of these participants, 171 students in the 2015 and 2016 classes took the unit on the origin and importance of life, growth and development from the fetal period to the early primary school years, and the importance of a healthy lifestyle. These classes were provided by midwives, the school nurse and teachers when the 171 students were in the second grade of primary school. Students in the 2013 and 2014 classes underwent the same type of education under the same conditions, but it was taught by school nurses and teachers.

### Learning by the students who took the SRE program

Students who took the SRE program reported learning that was organized into two categories and four sub-categories each under the two themes of " Physical, emotional, and social changes associated with puberty " and " The Processes and Importance of Life. " As for the total number of 1544 cords, " Physical, emotional, and social changes associated with puberty " and " The process and importance of life " included 950 and 594 cords, respectively (Table 3).

#### Physical, emotional, and social changes associated with puberty

##### Fundamental aspects of growth and development, and diversity

Students in the fourth grade of primary school understood physical, emotional, and social changes associated with puberty from the perspective of individual and sex-based differences in growth and development, and they grasped mental and emotional development from aspects such as emotions of friendship and infatuation, and interest in another person.

##### Individual differences in growth and development

The students understood that growth and development associated with puberty was related to growth hormones, and they learned that

Theme	Category	Sub- category	The number of codes
Physical, emotional, and social changes associated with puberty	Fundamental aspects of growth and development, and diversity	Individual differences in growth and development	466
		Differences between boys and girls in growth and development	163
		Emotions of friendship and infatuation, and interest in another person	26
	Development of reproductive functions	Mechanisms of the reproductive system	100
		Changes in the reproductive system	195
The process and importance of life	Conception, pregnancy, and childbirth	Images of pregnancy	344
		Images of conception and childbirth	88
	The importance of relationships and life	Bond between parents and children	54
		Preciousness of life	108

Table 3: Learning by the students who underwent the SRE program.

there were individual differences in growth and development. At the same time, they reviewed their own physique and were relieved to find that they were progressing normally.

I was surprised to learn that as I got bigger my brain was sending out orders for hormones to be sent into my body so that I could grow. My height and weight will continue to increase. So, I want to build a strong body by going to sleep and getting up early and eating balanced meals.

This was the first time that I learned that everybody has different periods of growth and that there are individual differences. I'm glad I learned that there are individual differences between people, so some people are small and others are big. I'm short, so I was relieved to hear this information.

#### *Differences between boys and girls in growth and development*

The students were surprised to learn that boys and girls have different periods of physical growth and development. They were able to understand those differences by gaining an image of the defining sexual characteristics of pubertal boys and girls.

I was surprised to learn that girls start to grow earlier than boys but then boys' growth picks up speed later. It was the first time I had heard that the speed of boys' and girls' growth is different.

Girls grow breasts and their body takes on a curved shape. Boys become muscular and strong, their shoulders widen, and they grow whiskers. I also learnt that they get armpit hair and hair around their private parts, they become prone to getting acne, and their voices get deeper.

#### *Emotions of friendship and infatuation, and interest in another person*

The students were able to come to expect that boys and girls were going to experience a range of emotions of friendship, sexual attraction to, and infatuation with another person as they matures. Moreover, they recognized that mutual respect is the key to keep good relationships with others.

I found out that I would become interested in the other sex during puberty.

I learned that boys and girls would react to the other sex in different ways during puberty, but I also felt the importance of being nice to each other.

#### **Development of reproductive functions**

Students learned about the development of the reproductive functions by looking at how hormones cause the manifestation of reproductive features and how changes in the reproductive system give rise to sexual characteristics. Moreover, they were interested in the subject considering that it was changes that they themselves would undergo in the near future. Furthermore, the new knowledge acquired by the students facilitated conversations about changes in the reproductive system at home, solidifying their knowledge as they could associate it with the reproductive experiences of parents and siblings.

#### *Mechanisms of the reproductive system*

The students came to understand that the development of the reproductive system through the effects of gonadotropic hormones and sex hormones released from the brain is a necessary mechanism for becoming an adult.

When our body gets close to being adult, the brain releases hormones and the testicles release hormones, which are carried all over the body. The testicles develop so that it can produce sperm. The penis is a passage for urine, but once sperm is produced, it becomes a passage for that as well.

In girls, hormones are released from the brain to the body and menstruation takes place. In the beginning, our menstrual periods are irregular, perhaps once a month or once every three months. I really felt that people's physical make-up is different. Girls are preparing to have babies like this...

#### *Changes in the reproductive system*

The students came to understand how changes in the reproductive systems of boys and girls give rise to their sexual characteristics through the phenomena and technical terms, comparing it to the current state of their own bodies, which relieved them and allowed them to prepare themselves mentally.

When boys arrive at puberty, a white fluid comes out of the penis if it is stimulated or when you are sleeping. This is called "ejaculation" and "dream wet". I learned a lot and felt that I should take care of my body's sperm.

[I] have just experienced the phenomenon of a white fluid coming out that boys have, so I was relieved to hear that I'm not sick.

I learned for the first time that it's called ovulation when ova come out of the ovaries and menstruation when the uterus bleeds. My stomach sometimes hurts and I feel sluggish during menstruation. I didn't know that we sometimes feel irritated already before menstruation. But I was relieved that I'm not sick. I think the body is amazing that it prepares us to become adults.

### **The process and importance of life**

#### **Conception, pregnancy, and childbirth**

Many students came to understand conception by imagining an ovum and a sperm meeting, pregnancy by imagining a fetus in the uterus, and childbirth by imagining labor under mother-child cooperation.

#### *Images of pregnancy*

The students learned about pregnancy from the aspects of fetal gestational age, growth, development, fetal behavior and function of fetal appendages, etc., as well as thought about how difficult it is for a mother to grow a fetus.

It takes 10 months for a baby to grow from 0.1 mm to 50 cm, and during that time, it's in a place called the uterus inside the mother and grows with nutrients through the umbilical cord. It grows inside the womb while practicing different things by drinking amniotic fluid, peeing, yawning, and licking its fingers.

I really felt that my mom and the midwives must have had a hard time raising me since before I was born until now.

#### *Images of conception and childbirth*

The students came to perceive conception as the first instance of life and were amazed by how childbirth is not only the mother giving birth but also the baby doing its part. They also mentioned that abnormal delivery is needed in some situations.

I learned for the first time that a baby comes to life when a sperm created in a boy's testicles merges with an ovum from a girl's ovaries.

I learned for the first time that the room called as uterus where the baby grows contracts, that the baby rotates while going through the uterus, the pelvis, and the rest of the birth canal, and that the biggest part that is the head is the first to come out through a place called the vagina. The mother has such a difficult time when giving birth to the baby and the baby works hard when being born. I now know very well that my mom had a hard time when giving birth to me.

I learned that a Caesarean section is needed when the baby doesn't come out head first.

### **The importance of relationships and life**

The students became aware not only of the biological connection they have with their parents, but also of their social relationships, and recognized once more that they were brought up by their parents and other adults close-by.

#### *Bond between parents and children*

The students not only affirmed their birth and the love of their parents and other adults, but also came to understand once again that their friends and other people were equally precious.

The baby is connected with the mother through the umbilical cord while in the womb. I felt that babies find out who the real mother is through the breastmilk. I could feel again that I grew up like this thanks to the help of my mom and dad and other people since I was born.

I think that the baby is the mother's second life. "Life relay" is a word that I want to appreciate.

#### *Preciousness of life*

The students were happy to hear that they are like treasures loved by their parents and others, and also came to affirm their births as well as valued once again not only their life but also other people's lives as precious.

I was happy to find out that there are so many people who become happy when a new life is born and that I was loved so much. So, I felt happy that I was born and want to take good care of my body.

I think that the growth of a child is like a treasure to the mother and father. Both I and my friends are the same "life," and I want to take care of it.

### **Discussion**

#### **Significance of the anticipatory education on physical, emotional, and social changes associated with puberty**

Regarding the first and second subcategories in the first category of "Fundamental aspects of growth and development, and diversity", students recognized individual and sex-based differences in growth and development during puberty. These differences, as one of the elements comprising sexuality education for school-going children in particular, are important when learning about diversity, which is a basic characteristic of sexuality. Knowledge of these differences forms the foundation for learning about sex-based differences. In contrast, for early graders in primary school or children between the ages of 5 and 8 years, it is recommended to teach them the differences between males and females and among individuals and families as an introduction to sexuality education before pubertal growth and development begins [25]. It would be crucial for children to accumulate knowledge constantly by means of learning differences in growth and development during puberty in addition to these differences between males and females and among individuals and families.

Regarding the third subcategory, "Emotions of friendship and infatuation, and interest in another person", children learned about it prospectively as an event that they would experience in the future. It has been pointed out that an interest in the other sex emerging during puberty depends on an interest in sexual objects, that is, variability in proceptive sexual desire, and is closely linked to variability in testosterone levels in boys and in testosterone and estrogen levels in girls [30]. In addition, the study which examined same-sex and other-sex friendships in children or adolescents by focusing on the neuroendocrine and autonomic nervous system indicated that a child's physiological response to stress as reflected in cortisol levels was mitigated when a best friend is present [31]. Therefore, it was considered important to create a SRE program so that children can comprehend the importance of psychosocial health by establishing a link between evidences - such as the changes in endocrine system

(activation of gonadal hormones and sex hormones) and mitigated cortisol levels in children to stress-and the significance of having a best friend in addition to the changes in social relationships among puberty, and can build high-quality same-sex and/or other-sex friendships.

The second category indicated that students saw development of reproductive functions from the perspective of mechanisms and changes. Chemical and neural signals stimulate the hypothalamus to produce kisspeptin, which in turn stimulates secretion of gonadotropin releasing hormone (GnRH) from the hypothalamus. This leads to the release of luteinizing hormone (LH) and follicle stimulating hormone (FSH) from the pituitary gland, thereby stimulating the production of gonadal hormones. Increased levels of androgens in both boys and girls are responsible for the growth of pubic and axillary hair, and in boys for the development of muscles and deepening of the voice. Increased levels of estrogen in both boys and girls are responsible for the increases in bone density; in girls, estrogen stimulates growth of the endometrium and breasts, widening of the pelvis, thickening of the mucosal surface of the vagina, and the onset of menarche. The equivalent of menarche in boys is the first ejaculation (spermarche), which is characterized by testicle growth and changes in scrotal tissue [32]. It is recommended that the mechanism of these changes be taught to children in a preparatory manner with an evidence-informed approach at the most effective and beneficial time, taking children's needs [33] and developmental stages into consideration [34, 35]. Thereby, children could associate these changes with the golden rules of healthy life that they learn in earlier grades, including diet, sleep, exercise, excretion, and maintaining cleanliness, and could re-recognize the importance of these changes based on such healthy life styles.

### **Understanding of reproductive phenomena and re-recognition of importance of life**

Through reflecting on the bond with their parents and own growth and development since the prenatal period by understanding reproductive phenomena, the students re-recognized that their presence is supported by their families, relatives, and the other adults around them.

In recent years, other studies have pointed out that there is a diversity in understanding about pregnancy or childbirth among sixth grade boys and girls owing to differences in countries and regions [ 36, 37 ], as well as lack of understanding in general, and that many parents take an uncertain attitude toward providing their adolescent children with topics regarding reproductive phenomena or care of babies [ 21 ].

In contrast, the findings in the previous study [16] showed that children of all ages were especially fascinated by childbirth phenomena and life in the womb. Most of the children in our study had a satisfactory level of knowledge about these topics. For example, they associated the knowledge obtained via these topics with living with a newborn baby in their own family. Children evoked the warm relationships they experienced with their families and people around them by learning about reproductive phenomena and the growth and development process in humans. As a result, they came to think about mutual respect, meaning that not only their lives, but their peers' lives are important as well. This was considered to correspond to creative thinking, which is a thinking skill, a core concept of life skills as defined by the World Health Organization. In other words,

these children associated the evidence on reproductive phenomena as well as growth and development process in human with their own life experiences, which resulted in them thinking about parent-child bonding and the importance of friends. This indicates that learning these things is significant because it helps creatively advance children's thinking. These findings support previous researches that indicated the necessity of incorporating life skills education into the regular school curriculum, as discussed above. We believe that it will be possible to integrate life skills education into the SRE program in primary schools. Specifically, we believe that diverse strategies such as classroom discussion, brainstorming, involvement in thinking process, and storytelling can be applied to the SRE class [38].

### **Conclusions and Suggestions for Future Health Education for Primary School Students**

The results of this study indicate the knowledge gained from learning of the fourth graders in primary school who took the collaborative SRE Program by school health and midwifery.

Through learning from the collaborative SRE Program, they developed: an understanding of physical, emotional, and social changes associated with puberty and of the processes and importance of life. In addition, they are able to prepare themselves to physical, emotional, and social changes associated with puberty mentally.

Currently, adolescents' increasing uses of digital media including unlimited access from early childhood to sexually explicit material on the Internet have brought about the significant historical change in child and adolescent sexuality.

It will be required to include such a new challenge in the collaborative sexuality and relationship education in future while considering the continuity of related subjects from the lower grades to the upper grades and the developmental stage of children. Furthermore, multifaceted program evaluation including viewpoints of children will be expected.

### **Limitations**

This study is an evaluation of a collaborative SRE program conducted by a local government at a single elementary school in a region from the children's viewpoints. We cannot deny the bias that is created by the locality and the educational policies of the region. Approximately half the students had taken the SRE program based on collaboration with integrated external providers. From this fact, we infer that there was a difference in readiness between these students and the other students. Additional analysis is therefore required for the future to quantitatively compare the students' learning through the differences.

### **Competing Interests**

The authors declare that no competing interests exist.

### **Author Contributions**

CK took responsibility for the study concept, the methodology, and relationship building with community partners. CK, MS, and MI developed the SRE program. CK, MS, MI, MH, and NH comprised the team that provided the SRE. CK and MS analyzed the data under TA's supervision.

## Acknowledgements

The authors are sincerely grateful to the children and their families who participated in the SRE class; the officials in charge of educational guidance in the local government; and the elementary school principal and teachers who cooperated with this study.

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