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# A hidden curriculum in Japanese EFL textbooks: Gender representation



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## ARTICLE INFO

### Article history:

Available online 13 August 2014

### Keywords:

Corpus  
Gender  
Hidden curriculum  
Japan  
Sexism  
Textbook

## ABSTRACT

This study seeks to uncover the hidden curriculum in relation to gender representation in two popular series of contemporary Japanese EFL textbooks. The criteria examined include male-to-female ratios, use of gender-marked and neutral vocabulary, titles of address for women, order of mention, and common attributes and types of activities associated with men and women. Instead of the generally manual methods of analysis employed in many previous studies, corpora and modern software tools are used (frequency counts, collocation, and concordancing analyses via WordSmith tools) in an attempt to investigate whether the Japanese government's attempt to promote a gender-equal society through education in recent years has been put into practice by textbook writers and publishers. The findings reveal common use of gender-neutral vocabulary and the neutral title *Ms* to address women. However, gender disparities in the forms of female invisibility, male firstness and stereotypical images are still prevalent in the textbooks examined.

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## Introduction

Gender is socially constructed through human interaction and interpretation, rather than biologically determined (Berkowitz, Manohar, & Tinkler, 2010; Lorber, 1994; Odhiambo, 2012; West & Zimmerman, 1987). According to Lorber (1994, p. 22), individuals are born “sexed” but not “gendered”. In the social construction of gender under the influence of parents, schools, peers and the mass media, children learn to walk, talk and behave in the way that their community expects boys and girls should.

Manifestations of gender norms can be found in educational materials. If a language contains words and phrases that indicate prejudice against a particular gender group, these gender biases may be imparted to children through textbooks in the form of linguistic sexism. Many languages, including English and Japanese, have features that background or degrade women, including asymmetric expressions and the default presentation of male gender as the norm (Pauwels, 1998; Takemaru, 2005). Apart from linguistic sexism, omission of females and gender stereotyping are other common manifestations of gender inequality found in educational materials (Matsuno, 2002; Mineshima, 2008; Pauwels, 1998; Porreca, 1984). It is important to uncover the hidden curriculum relating to gender construction in school textbooks, as any biases transmitted to learners may have a pernicious impact on their personal and cognitive development. Gender perceptions can influence children's behaviour in very gendered ways (Odhiambo, 2012).

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Japanese EFL textbooks have been selected for the present study because while Japan has traditionally been regarded as a patriarchal society in which female inferiority is the norm (Saito, 2005; Storm, 1992), social changes have been effected through such instruments as the new Basic Act on Education, passed in 2006, which includes the objective of fostering an attitude that values justice, mutual respect, and equality between men and women. It is therefore deemed timely to examine whether the hidden curriculum in school textbooks reflects the ancestral tradition of male supremacy or conforms to the present Japanese government's vision of establishing a gender-fair society.

### The hidden curriculum

School curriculum is defined as “an explicit, conscious, formally planned course with specific objectives” (Kentli, 2009, p. 83), which include learners' development of instructional knowledge and skills. Learners, however, may acquire much more than what is explicitly specified in school textbooks and teacher manuals through an unwritten curriculum in the social environment provided by the school. The unwritten, hidden curriculum, or sometimes called a “covert” and “latent” curriculum, is generally acknowledged as “the socialization process of schooling” (Kentli, 2009, p. 83), and functions to reinforce dominant beliefs, values and norms among learners (Giroux & Penna, 1979). The difference between the formal curriculum and the hidden curriculum is that while the former specifies openly what students are intended to learn, the latter involves that which is not openly intended but which students learn regardless.

Martin (1976) suggests two kinds of hiddenness: unintended and intended. A cure for cancer, which is unknown to us, is an example of the former, and a penny hidden in the game Hide the Penny is an example of the latter. Martin incorporates these two kinds of hiddenness in his definition of a hidden curriculum, saying that “a hidden curriculum consists of those learning states of a setting which are either unintended or intended but not openly acknowledged to the learners in the setting unless the learners are aware of them” (p. 144). The sources of hidden curricula include textbooks, a teacher's use of language, standard learning activities, and the social structure of the classroom, among others.

Although there have been suggestions that textbooks may not be the most appropriate focus in the study of gender construction, as bias may be found outside text (Sunderland, Cowley, Abdul Rahim, Leontzakou, & Shattuck, 2000), there is no doubt that textbooks play a major role in formal education. The learning activities, organization of the classroom and teachers' use of language are often based on textbook design. There is a general consensus that school textbooks play a very important role in both formal and hidden curricula. Not only do textbooks disseminate knowledge to learners, but they also reflect, construct and reproduce certain worldviews as well as the writers' beliefs, and have the potential to influence impressionable young learners in various ways (Gullicks, Pearson, Child, & Schwab, 2005; Hino, 1988; Liu, 2002; Sileo & Prater, 1998). Stromquist, Lee, and Brock-Utne (1998) argue that textbooks and educational materials have lasting influences on learners' beliefs about gender roles, as the phrases and stories heard and learnt regarding women and men condition their minds. Further, the textbooks used, which shape repeated classroom practice, follow-up assignments and examination preparation, will exert influence on learners in terms of their learning motivation (Treichler & Frank, 1989) and their understanding of social equality (Mukundan & Nimehchisalem, 2008). Mustapha (2012) adds that the linguistic sexism that can be found in textbooks has harmful real-world and damaging pedagogical consequences, especially for females.

Heightened gender awareness in Japan was revealed in the new Basic Act on Education passed in 2006, which includes the objective “to foster an attitude to value justice, responsibility, equality between men and women, mutual respect and cooperation, and actively contribute, in the public spirit, to the building and development of society” (MEXT, 2006). In its attempt to promote human rights education and learning opportunities to respond to social issues, including the formation of “a gender-equal society”, one measure taken by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) is to improve textbooks through its authorization system.

The impact of textbooks may be especially strong in Japan, where textbooks have institutional authority, as they have to be approved by MEXT before being adopted, and where school lessons tend to follow textbooks closely (Matsuda, 2002; Otlowski, 2003). The important role played by textbooks in elementary and secondary education in Japan was openly acknowledged by MEXT (2013):

Textbooks are the principle teaching material in school curriculums and fulfil an important role in students' pursuit of learning. As such, enhancing the quality and quantity of textbooks is essential, and the authorization of textbooks is underway to ensure compliance with the new Courses of Study.

The adoption of the textbook authorization system in Japan and the free distribution of textbooks to elementary and junior high school students by the government may encourage students to attach great credibility and authority to textbook materials. According to Jassey (1997), almost all Japanese children are raised with the assumption that what is taught in school is always right. In view of the significant role played by textbooks in formal education, the hidden curriculum in Japanese textbooks in relation to gender construction is thus a topic worth exploring.

### Previous textbook studies

Scholars interested in gender studies have examined the various manifestations of gender inequality that may appear in textbooks (e.g., Graci, 1989; Hellinger, 1980; Lee & Collins, 2008, 2009; Mannheim, 1994; Porreca, 1984), including (1)

female and male visibility, (2) gender stereotyping, (3) use of gender-biased language, (4) asymmetrical titles of female address, and (5) male-firstness. These various forms will be reviewed below.

### *Female and male visibility*

One widely discussed manifestation of gender inequality is female invisibility. According to Porreca (1984), when women's appearances in texts or in illustrations are not as numerous as men's, the hidden message is that women's accomplishments, or they themselves, are not important enough to be mentioned. Omission of women was commonly found in a number of previous textbook studies (e.g., Gupta & Lee, 1990; Hellinger, 1980; Lee & Collins, 2008, 2009; Porreca, 1984; Wharton, 2005). In their pioneering study, Weitzman, Eifler, Hokada, and Ross (1972), for example, analyzed award-winning picture books for preschool children, finding that women were "simply invisible" (p. 1128) in close to one-third of the books examined, and were under-represented in the titles, central roles, pictures and stories. In a replicated study in the 1980s, Williams, Vernon, Williams, and Malecha (1987) found that the ratios of females to males had moved closer to parity, although this varied considerably among individual books.

### *Gender stereotyping*

Another form of gender inequality commonly observed in textbooks is gender stereotyping. It has been argued that constant exposure to stereotypical models in children's books plays a role in the vicarious learning of such traditional norms, which could restrict children's role behaviour and limit their horizons and expectations (Macaulay & Brice, 1997; Scott, 1980). Weitzman et al. (1972) found rigid gender role portraits in the picture books they examined: boys were active, leading and rescuing others, while girls were passive, following and serving others; men engaged in a wide variety of occupations, while women were presented as wives and mothers. Similar depictions of women in a more limited range of social roles and as weaker and more passive than men have been noted in some recent studies (e.g., Amare, 2007; Evans & Davies, 2000; Lee & Collins, 2010). The inadequacy of models for girls' personal and career aspirations is of concern to many feminists and others.

### *Use of gender-biased language*

Gender inequality can also be found in the use of gender-biased language. Some language commentators (e.g., Holmes, 1993; Miller & Swift, 1988; Mills, 2008; Schneider & Hacker, 1973; Spender, 1998; Swim, Mallett, & Stangor, 2004) have attacked the use of masculine nouns and pronouns as the benchmark for all human beings, as this renders women invisible and may inhibit their career choices (examples of this use include *Man is evil* or *When the foreman comes, I'll ask him questions*). Currently, gender-neutral or unmarked terms (e.g., *people, human being, businessperson, salesperson*) and paired pronouns (e.g., *he or she, him or her*) are increasingly used in place of their gender-exclusive counterparts (Lee & Collins, 2008; Pauwels, 1998).

### *Asymmetrical female address titles*

An honorific is a title preceding a person's name. English honorifics have long been criticized for being gender-asymmetrical: in contrast to the neutral male address title *Mr*, which does not indicate a man's marital status, the female titles *Mrs* and *Miss* have traditionally been used to address married and unmarried women respectively. *Mrs* is characterized by an implicit relationship between the woman referred to and her husband. The non-parallel address titles provoke criticisms about why women are thus defined in relationship to men. Despite some impediments in earlier years (Lillian, 1995), attempts to redress this asymmetry by introducing the neutral title *Ms* as a substitute for *Mrs* and *Miss* have received increasing endorsement worldwide (Atkins-Sayre, 2005; Holmes, 2001; Pauwels, 2001; Winter & Pauwels, 2007).

### *Male-firstness*

Traditional assumptions of male supremacy are reflected in the male-first ordering of the coordinates in paired expressions such as *Mr and Mrs Matsuda, Romeo and Juliet*, and *he or she*. The endorsement of this practice can be traced to at least the 16th century, when Thomas Wilson (1560, p. 189; cited in Eckert & McConnell-Ginet, 2003, p. 34) remarked, "let us kepe a natural order and set the man before the woman for manners Sake". Male-first ordering is still common, as shown in Amare's (2007) study of online grammar exercises, which observed an almost 5:1 ratio in favour of male-firstness.

Japan has traditionally been regarded as a sexist society, and women there still face more difficulty in finding jobs and often receive lower salaries in jobs comparable to those done by men (Matsuno, 2002; Thomson & Otsuji, 2003). It is worth exploring whether educational materials have contributed to the perpetuation of biases against women. So far, only a few studies examining gender representation have been conducted on Japanese textbooks, and the results have been mixed (e.g., Jassey, 1997; Matsuno, 2002; Mineshima, 2008; Sakita, 1995; Sano et al., 2001; Thomson & Otsuji, 2003). Severe inequity was found by Sakita (1995) in her survey of 10 EFL high school textbooks in the early 1990s. Examples of this inequity included women's invisibility and a high tendency to portray women without occupations or with stereotypical jobs assisting males.

Stereotyped gender roles were also evident in adjective usage and in activity description: men were associated with physical strength, body size and reputation, and women with weakness, emotion, attractiveness and domestic roles. In [Jassey's \(1997\)](#) study of 71 stories found in 36 language arts textbooks published in 1988, 1991 and 1995, improvement in female visibility was noticed in the newer editions. However, there was also evidence of gender stereotyping associated with character traits and occupational roles. In their study of junior high school EFL textbooks, [Sano et al. \(2001\)](#) noted the elimination of gender-biased language such as *chairman*. Implicit gender-biased messages, nevertheless, were evident: male characters tended to be decision-makers, while female characters filled subordinate roles, as reflected in the former's more frequent association with such verbs as *choose* and *decide*. [Otlowski \(2003\)](#) observed, in the textbook *Expressways A*, discriminatory use of the address titles *Mrs* and *Ms* and stereotypical portrayals of women as homemakers and mothers. Contrary to previous investigations, gender equality was found in [Mineshima's \(2008\)](#) more recent study of an EFL textbook used in senior high schools, which included fairly egalitarian representations of the two genders in terms of visibility, character attributes and picture representations.

The mixed results found in previous studies, and MEXT's stated objective of promoting a gender-equal society as stipulated in its new Basic Act on Education, warrant further studies to uncover whether contemporary textbook writers have heightened gender awareness and made efforts to establish gender equality during their compilation and presentation of textbook materials. Instead of using the generally manual analytical methods used in earlier studies, the present study will take advantage of corpus linguistic techniques, which are discussed below.

### Corpus analysis and gender representation

The limitations of the manual methods of quantitative analysis commonly used in previous textbook studies make it likely that subtle gender biases have been missed ([Carroll & Kowitz, 1994](#)). Using software programmes such as WordSmith Tools ([Scott, 2012](#)) and AntConc ([Anthony, 2012](#)) to conduct computer concordancing has the potential to fill this gap and to enable a more thorough and wide-ranging investigation of gender representation, as well as offer greater speed and reliability. Computer concordancing is a form of lexical analysis that gives information about all the occurrences of a selected word or phrase, including its frequency, location and context. Information about the use of gendered lexis and the words associated with it can provide useful insights about how genders are represented. The relative frequency of a lexical item will indicate its saliency. For example, if masculine pronouns appear more frequently than feminine pronouns, this could suggest male prominence. Collocational analysis, a technique for identifying words that are most likely to be associated with other selected words, involves tabulating occurrences of all words within a specified distance of all occurrences of the target item. For example, an analysis of the common verbs associated with subject pronouns *he* and *she* could reveal the kinds of activities performed by males and females.

[Carroll and Kowitz's \(1994\)](#) textbook study on gender construction used such concordancing techniques as frequency counts, collocation and Key Word in Context (KWIC). They studied the frequencies of various types of pronouns in two series of ELT textbooks published in the 1980s and found consistent predominance of masculine pronouns in all the books studied. Collocational analysis, a technique for identifying words that appear near a particular search word, involves tabulating occurrences of all words within a specified distance of all occurrences of the selected word. Carroll and Kowitz's examination of the adjectives collocating with *woman* and *man* in the textbook series found notable difference in the descriptions of the two genders: women were likely to be described as *beautiful, busy, pretty* and *tall*, and men were associated with *young, old, strong, poor* and *rich*. Another analysis technique used was KWIC concordances, which show the key word in a column, usually in the centre of each line, with context on either side. The finding shows that the key word "work" was presented as a "masculine verb" – *he works* occurred with such adverbials as *in an office, on the land, in a shop, or in a theatre*. The study found only one instance of *she works* ("sometimes as a secretary"). This finding illustrates that a difference in usage can have implications for gender relations, and KWIC concordances are able to reveal this kind of subtle gender stereotyping.

Following [Carroll and Kowitz \(1994\)](#), [Jasmani et al. \(2011\)](#) used concordancing technology to conduct a quantitative analysis of different types of verbs found in six Malaysian English-language secondary school textbooks. The results indicated gender stereotyping and gender imbalance in relation to the verbs used. For example, activity verbs associated with males included *said, told, know, made, wants, came* and *go*, and those associated with females included *think, tell, bought, show, care, buy* and *got*. In contrast, [Yang's \(2012\)](#) investigation of the collocations of some gendered nouns (e.g., *he, she, man, woman, girl, boy*) in a series of Hong Kong primary textbooks found that females were no longer portrayed as delicate and weak, but rather were presented as engaged in a wide range of jobs and outdoor activities.

### The present study

The present study followed the computational analysis techniques adopted by [Carroll and Kowitz \(1994\)](#) to reveal the subtle gender ideologies hidden in language use that were possibly unsuspected previously. The two major aims of this paper were (1) to examine the hidden curriculum in terms of how women and men were represented in current Japanese EFL textbooks in the midst of heightened gender awareness in contemporary Japanese society, and (2) to illustrate how gender studies could be enhanced by the use of corpus linguistic techniques. EFL textbooks were chosen because English is the only compulsory foreign language taught in Japanese schools. Since April 2011, English has been a required subject from

Grade 5 onwards. Japanese itself is a sexist language (Sakita, 1995), and if the compulsory foreign language that students learn in school also contains sexist features, gender bias will be reinforced and perpetuated.

The present study focused on a corpus of texts gathered from two series of EFL textbooks for senior high school students published in Japan in 2011, *Orbit* and *Unicorn*. They were chosen because of their popularity. *Orbit*, which was published by Sanseido, a popular publisher, was a reading book used throughout Japan at the time of the study. *Unicorn*, published by Bun-Eido, was one of the most popular textbook series, according to a 2011 school textbook adoption survey (教育部 2010). While the scope of the present study was small, the analysis of the selected textbooks generated a preliminary finding and contributed to a larger scenario of textbook analysis on gender in future research.

The two volumes of *Unicorn* were written by several of the same writers: one female and five males (including one English speaker) for *Unicorn I*, and one female and four males for *Unicorn II*. *Orbit* was written by four male writers, among whom was one English speaker. There are 10 units and two reading sections in each volume of *Unicorn*, with 21,269 words in *Unicorn I* and 25,591 words in *Unicorn II*. *Orbit* contains 26 reading passages, comprised of a total of 12,981 words. The corpus data included all the English texts found in each unit (including glossaries in the footnotes and picture captions), but excluded the Japanese translations and the supplementary sections at the end of the books (i.e., idioms, word lists, and example sentences illustrating selected grammar points).

In order to deconstruct the representations of the two genders in the textbooks examined, answers were sought to the following research questions:

1. What is the ratio of female-to-male appearances?
2. To what extent are gender-neutral and gender-marked constructions used?
3. What are the common adjectives used to describe women and men?
4. What are the common types of activities associated with men and women?
5. What are the common address titles used for women?
6. What is the order of appearance of women and men when both are referred to in a single phrase?

WordSmith 5.0, which includes an integrated set of research tools, was adopted for this computational analysis. All the texts were entered electronically by a research assistant and counter-checked for data accuracy by the present author before computational analyses were performed. The Choose Texts Tool of WordSmith 5.0 was used to build up the two textbook corpora. The Concordance Tool was used to count the frequency of selected words and to organize data in a KWIC format so that the collocates associated with the target words could be identified.

The following analyses were conducted to examine the six research questions (see Table 1 for details).

To answer research question 1, regarding the ratio of female-to-male appearances, the present study noted the frequency counts of (1) selected gendered words and their inflected forms (e.g., *man*['s]/*men*['s], *woman*['s]/*women*['s], *boy*, *girl*, *Mr*, *Miss*, *Ms*, *Mrs*, *mother*, *father*), and (2) masculine pronouns (*he*, *him*, *his*, *himself*) and feminine pronouns (*she*, *her*, *hers*, *herself*). To investigate further the factors that contributed to the visibility of the two genders, the gender orientation of each reading passage was identified manually based on the content and the number of male and female characters mentioned in the text. Five categories were identified: males only, male-dominated, females only, female-dominated, and equal share. When the content and the number of the gendered characters did not agree, it was the content that would determine the category. For example, the supplementary reading passage of *Unicorn II* was mainly about a female protagonist, and therefore, despite the fact that there was one more male subsidiary character than female in the story, the text was classified as “female dominated”.

To investigate research question 2, regarding the extent of use of gender-marked and gender-neutral terms in the two series of textbooks analyzed, concordance searches were conducted to record the frequencies of occurrence of pseudo-generic term *man/men*, compound words ending with a masculine morpheme (i.e., *-man/men*, *-boy[s]*, *-master[s]*) or a feminine morpheme (i.e., *-woman/women*, *-girl[s]*, *-mistress[es]*), and their corresponding gender-neutral counterparts. The use of gender-inclusive paired pronouns (*he or she*, *her/him*, etc.) was also noted.

To address research question 3, regarding the types of properties and characteristics most commonly ascribed to women and men, the present study examined the Key Word in Context (KWIC) concordances of the nominative pronouns *he* and *she*, and the gendered nouns *man/men*, *woman/women*, *girl[s]* and *boy[s]*. Each KWIC concordance output consists of the key word in the centre of each line, with context on either side (i.e., five words on either side). All the personal adjectives associated with the target words were recorded. Nationalities (e.g., *Indian*) were excluded from this analysis.

To address research question 4, concerning the kinds of activities engaged in by the two genders, the collocates associated with the pronouns *he* and *she* (i.e., five words on either side) were noted, and their relation statistics (Mutual Information) were calculated in order to examine the salience of the association.

To investigate research question 5, regarding the common address titles used for women, the frequencies of occurrence of *Ms*, *Miss* and *Mrs* were noted.

To seek answers to research question 6, KWIC concordances of the conjunctions *and* and *or* were studied to investigate the order of mention of men and women in a single phrase coordinated by the conjunctions (e.g., *father and mother vs. mother and father*; *he or she vs. she or he*).

**Table 1**  
Methods of analysis.

Categories	Criteria	Codes
Female and male appearances (RQ 1)	Frequency of occurrence of selected gendered words and their inflected forms (e.g., <i>man/men/man's/men's</i> , <i>woman</i> , <i>boy</i> , <i>girl</i> , <i>Mr</i> , <i>Miss</i> , <i>Ms</i> , <i>Mrs</i> , <i>mother</i> , <i>father</i> )	<ul style="list-style-type: none"> <li>• Female</li> <li>• Male</li> </ul>
Masculine and feminine pronouns (RQ 1)	Frequency of occurrence of masculine pronouns ( <i>he</i> , <i>him</i> , <i>his</i> , <i>himself</i> ) and feminine pronouns ( <i>she</i> , <i>her</i> , <i>hers</i> , <i>herself</i> )	<ul style="list-style-type: none"> <li>• Masculine</li> <li>• Feminine</li> </ul>
Use of gender-marked and gender-neutral terms (RQ 2)	Frequency of occurrence of <ul style="list-style-type: none"> <li>• pseudo-generic <i>man/men</i>, and their corresponding gender-neutral counterparts (e.g., <i>human</i>, <i>people</i>)</li> <li>• compound words ending with a masculine morpheme (i.e., <i>-man/men</i>, <i>-boy[s]</i>, <i>-master[s]</i>) or a feminine morpheme (i.e., <i>-woman/women</i>, <i>-girl[s]</i>, <i>-mistress[es]</i>), and their corresponding gender-neutral counterparts</li> <li>• gender-inclusive paired pronouns (<i>he or she</i>, <i>her/him</i>, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Gender-marked</li> <li>• Gender-neutral</li> </ul>
Common adjectives used to describe women and men (RQ 3)	The kinds of adjectives collocating with selected gendered nouns ( <i>woman/women</i> , <i>man/men</i> , <i>boy[s]</i> and <i>girl[s]</i> ) and the pronouns <i>he</i> and <i>she</i> , e.g., <i>quiet</i> , <i>tall</i> , <i>important</i> , <i>rich</i>	<ul style="list-style-type: none"> <li>• Female</li> <li>• Male</li> </ul>
Common types of activities associated with men and women (RQ 4)	The collocates associated with the pronouns <i>he</i> and <i>she</i> (five words on either side), e.g., <i>painter</i> , <i>insisted</i> , <i>youth</i> , <i>feeling</i>	<ul style="list-style-type: none"> <li>• Female</li> <li>• Male</li> </ul>
Common address titles used for women (RQ 5)	The frequency of occurrence of the female address titles ( <i>Ms</i> , <i>Miss</i> or <i>Mrs</i> )	<ul style="list-style-type: none"> <li>• <i>Ms</i></li> <li>• <i>Miss</i></li> <li>• <i>Mrs</i></li> </ul>
Order of appearance (RQ 6)	The order of mention of female and male characters in a phrase coordinated by <i>and/or</i> .	<ul style="list-style-type: none"> <li>• Male first</li> <li>• Female first</li> </ul>

**Table 2**  
Frequencies of selected gendered words.

Male	<i>Unicorn</i>	<i>Orbit</i>	Female	<i>Unicorn</i>	<i>Orbit</i>
<i>man</i>	48(40.3)	57(87.7)	<i>woman</i>	71(59.7)	8(12.3)
<i>Mr</i>	31(88.6)	17(65.4)	<i>Ms/Mrs/Miss</i>	4(11.4)	9(34.6)
<i>boy</i>	40(54.1)	3(30.0)	<i>girl</i>	34(45.9)	7(70.0)
<i>father</i>	40(55.6)	11(34.3)	<i>mother</i>	32(44.4)	21(65.6)
<i>dad[dy]/pa</i>	10(90.9)	1(100.0)	<i>mom[my]</i>	1(9.1)	0(0.0)
<i>husband</i>	1(14.3)	1(50.0)	<i>wife</i>	6(85.7)	1(50.0)
<i>son</i>	10(62.5)	8(66.7)	<i>daughter</i>	6(37.5)	4(33.3)
<i>brother</i>	15(60.0)	1(25.0)	<i>sister</i>	10(40.0)	3(75.0)
<i>grandfather/grandpa</i>	32(84.2)	0(0.0)	<i>grandmother/grandma</i>	6(15.8)	2(100.0)
<i>uncle</i>	8(57.1)	1(20.0)	<i>aunt</i>	6(42.9)	4(80.0)
Total	235(57.1)	100(62.9)	Total	176(42.8)	59(37.1)

Note: The figures in brackets are in percentage terms.

To compare the construction of gender in the two series of textbooks, chi-square analysis in SPSS ( $\chi^2$ ) was applied to the results wherever appropriate, with a level of at least five per cent ( $p \leq .05$ ) being considered significant, and a degree of freedom of one.

## Findings and discussion

### Research question 1: What is the ratio of female-to-male appearances?

In order to find out whether the extent of female under-representation has been redressed in contemporary Japanese EFL textbooks, the frequency of some selected gendered words and their inflected forms (e.g., *man/men/man's/men's*, *woman*, *wife/wife's/wives/wives'*, *husband*) was recorded, as shown in Table 2.

Similar to some earlier Japanese studies (e.g., Matsuno, 2002; Sakita, 1995), the findings of the present study indicate that female under-representation is still prevalent in the contemporary Japanese EFL textbooks examined: the ratios of

**Table 3**  
Masculine and feminine pronouns.

Book	Nominative		Accusative		Genitive		Reflexive		Total	
	<i>he</i>	<i>she</i>	<i>him</i>	<i>her</i>	<i>his</i>	<i>her/hers</i>	<i>himself</i>	<i>herself</i>	Masculine	Feminine
<i>Unicorn</i>	447 (69.6)	195 (30.4)	92 (59.4)	63 (40.6)	215 (66.8)	107 (33.2)	7 (77.8)	2 (22.2)	761 (67.5)	367 (32.5)
<i>Orbit</i>	178 (83.2)	36 (16.8)	45 (84.9)	8 (15.1)	100 (83.3)	20 (16.7)	5 (100)	0 (0)	328 (83.7)	64 (16.3)

Note: The figures in brackets are in percentage terms.

**Table 4**  
Reading topics and gender orientation.

<i>Unicorn I</i>			Gender orientation	<i>Orbit</i>			Gender orientation
1.	You can change the world		F-dominated	1.	Confusion between languages		M-dominated
2.	Unique sports		M only	2.	A misspelled letter		F-dominated
3.	Alex the parrot		F only	3.	“People watching” on Tokyo trains		M-dominated
4.	Life is so good		M only	4.	The bear and the travellers		M only
For reading – The star			M-dominated	5.	Pets’ effect on health		NA
5.	Tofu – A world favourite		M only	6.	One swallow does not make a summer		M only
6.	The great journey		M only	7.	Record breaking birds		M only
7.	One step beyond		M only	8.	Test your limits!		M only
8.	Are we alone in the universe?		M-dominated	9.	Why do cats play?		NA
9.	Chagall: A life of love and art		M-dominated	10.	An appointment with death		M only
10.	Soseki in London		M-dominated	11.	The king and his soldier		M only
Supplementary reading: Silent Spring and Rachel Carson			F-dominated	12.	Why did something strange happen?		M only
				13.	Cashier defeats gunman		Equal share
<i>Unicorn II</i>			Gender orientation	<i>Orbit</i>			Gender orientation
1.	Feel the sound		F-dominated	14.	Deep impact		M only
2.	Sleeping with lions		M-dominated	15.	Food shortage: What do you think?		M-dominated
3.	Free the children		M-dominated	16.	Doctors without borders		Equal share
4.	Fashion – A reflection of the times		F-dominated	17.	The capricious robot		M only
For reading – The Christmas Angel			F-dominated	18.	A real superman		M-dominated
5.	A tour of the brain		Equal share	19.	I have never seen you before		M-dominated
6.	Lone vote – the life of Jeannette Rankin		F-dominated	20.	Fine arts of the East and the West		M-dominated
7.	The lessons of Easter Island		M only	21.	Mottainai		F-dominated
8.	The future of cloning		M-dominated	22.	The cornerstones of peace		M-dominated
9.	The younger days of Patch Adams		M-dominated	23.	The day I met my mother		F-dominated
10.	Endangered languages		M-dominated	24.	The oldest refrigerators		M only
Supplementary Reading – TA-NA-E-KA			F-dominated	25.	The last fan		Equal share
				26.	The fall of the Inca Empire		M only

male-to-female gendered terms were 1.34:1 for *Unicorn* and 1.69:1 for *Orbit*. No significant difference was found between the two series of books ( $\chi^2 = 1.546, p = .214$ ). In addition to male predominance, male supremacy was also revealed by the higher frequency of occurrence of the formal male address title *Mr* than of the female address titles (*Ms, Mrs, Miss*) (31 vs. 4 for *Unicorn*; 17 vs. 9 for *Orbit*). This finding was in line with some studies that found a higher tendency to introduce men by title plus last name whereas women were more likely to be called by first name or in terms of their relationship to others (e.g., Fasold, Yamada, Robinson, & Barish, 1990; Hartman & Judd, 1978; Hellinger, 1980). In Reading 19 of *Orbit*, for example, the banker is addressed as *Mr. Adams*, his daughter is named as *Annabel Adams/Annabel*, and his wife, remaining nameless, is addressed as *the mother of the daughter*. Similarly, in Unit 4 of *Unicorn I* (p. 45), the main character is addressed as *Mr. Dawson* three times and *Dawson* once. No first name by itself was used. The higher tendency to use the formal form of address for men suggests a greater respect accorded to them.

The study also included frequency counts of feminine and masculine pronouns (see Table 3). The results echoed the findings with regard to gendered vocabulary discussed above: there were substantially more occurrences of masculine pronouns than feminine pronouns, with a ratio of 2.07:1 for *Unicorn* and 5.13:1 for *Orbit*. Significant differences were found between the two series of books ( $\chi^2 = 37.622, p = .000$ ), indicating that the problem of female invisibility was more serious in *Orbit* than in *Unicorn*.

To investigate the factors that contributed to the gender imbalance found in the two series of textbooks, the gender orientation of each reading passage was identified based on the content and the number of male and female characters mentioned in the text. The gender classification for each text is presented in Table 4, and the summary in Table 5.

The findings show that the two series of textbooks had a higher tendency to present males as protagonists. As seen in Table 5, the two volumes of *Unicorn* contain six chapters that portray males only, and just one chapter that portrays females

**Table 5**  
Gender orientation (book summary).

Book	Males only	M-dominated	Females only	F-dominated	Equal share	NA
<i>Unicorn</i>	6	9	1	7	1	0
<i>Orbit</i>	12	6	0	3	3	2

speaker would have to explain how **he or she** came upon this information as many of the opposing players as **he or she** can. F. One team tries to I have no idea. Perhaps we should ask **him [her]**. I'm not sure. Maybe you not sure. Maybe you had better ask **him [her]**. Lesson 8 The future scientist consider the consequences of **his or her** work. 2. I suggested to he scientist consider the consequences of **his or her** work. Those who warn about we would spend hours learning about **his or her** family, friends, job and

**Fig. 1.** Paired pronouns (*Unicorn*).

only. The problem of gender imbalance was more acute in *Orbit*, with the ratio being 12:0. Although some chapters contain an equal number of male and female characters, the focus is on men. For example, in Unit 2 of *Unicorn II*, the characters include a couple, a male lion and a female lion. Most of the passage, however, is about the husband and the male lion. The wife and the female lion are merely supporting characters playing minor roles in the story. This under-representation of women is coupled with gender stereotyping. As seen in Table 4, some topics are presented as “male” topics dominated by males (e.g., sports, adventures, wars), while some are treated as “female” topics dominated by females (e.g., fashion, advice seeking and giving, pets, animal/environmental protection). Having said that, it should also be acknowledged that challenges to traditional gender roles were occasionally detected. For example, *Orbit* contains a chapter depicting the contributions of a woman doctor and a man doctor to Médecins Sans Frontières, and Unit 6 of *Unicorn II* is concerned with the achievements of two congresswomen in different eras.

These findings confirm that gender imbalance is still prevalent in the textbooks examined despite MEXT's attempt to promote a gender-equal society through education. It should be noted that male–female ratios presented in the two series of textbooks do not accurately reflect the composition of the current Japanese population. According to the [Statistics Bureau of Japan \(2011\)](#), there were more females (65,729,615, or 51.3 per cent) than males (62,327,737, or 48.7 per cent) in the population in 2010. The under-representation of females in textbooks should be addressed by writers and publishers, not only to promote gender equality, but also to reflect the demographic pattern of contemporary Japan.

The findings suggest that to help establish gender equality, textbook writers should include topics that have a fairer distribution of male and female characters, and present the two genders as protagonists more equally. The accomplishments of women should not be overlooked, as they serve as models for learners' aspirations.

#### *Research question 2: To what extent are gender-neutral and gender-marked constructions used?*

The study recorded a total of only 12 gender-marked terms in *Unicorn* and 13 in *Orbit* (see Table 6). The corresponding gender-neutral terms found numbered 234 and 107 respectively. No significant difference was found between the two series of textbooks ( $\chi^2 = 4.495, p = .034$ ). The findings suggest that contemporary Japanese textbook writers have strong awareness of the need to use gender-inclusive vocabulary. For example, instead of using the masculine generic term *man*, they use *people*, *person[s]*, *human[s]*, *human being[s]*, or *humankind*. Among the four instances of generic *man* found, three appeared in authentic excerpts and were not the textbook writers' original words. These findings support [Sano et al. \(2001\)](#) assertion that gender-imbalanced language has been substantially eliminated from EFL textbooks in Japan.

The use of newly coined words ending with the morpheme *-person* was a strategy adopted by the textbook writers to support gender equality. Examples include *waitperson* (cf. *waiter*, *waitress*), and *salesperson* (cf. *salesman*, *salesgirl*). Other gender-neutral words include *principal* (cf. *headmaster*), *head* (cf. *chairman*) and *police* (cf. *policeman*). Gender-marked terms were still in use when the gender of the person referred to was known, for example, the use of *superman* in reference to the actor Christopher Reeve and *congresswoman* in reference to American politician Barbara Lee. Nevertheless, when the referent was a group of people whose gender was mixed or unknown, the textbook writers used gender-inclusive terms such as *congress people* or *congress members* instead.

Apart from using gender-inclusive lexical expressions, the textbook writers of *Unicorn* also adopted paired pronouns in order to include females. A total of seven instances were found (see Fig. 1). However, none was recorded in *Orbit*. Compared to the widespread use of paired pronouns in Australian and Hong Kong textbooks ([Lee & Collins, 2010](#)), Japanese textbook writers seem to avoid the dual pronouns, perhaps to avoid being criticized as “bookish”, “cumbersome”, or “unnatural” ([Fowler, 1965](#); [Jochowitz, 1982](#)).



**Table 6**  
Gender-neutral and gender-marked vocabulary.

Gender-neutral (N)/gender-marked (M)	Vocabulary	<i>Unicorn</i>	<i>Orbit</i>
M	pseudo-generic <i>man</i>	1	3
N	<i>people</i>	187	71
N	<i>person</i>	18	4
N	<i>human/human being/humankind</i>	15	8
M	<i>ape-man</i>	3	0
N	<i>ape-people</i>	0	0
M	<i>policeman</i>	0	0
N	<i>police</i>	2	2
N	<i>police officer</i>	0	3
M	<i>businessman</i>	0	0
N	<i>businessperson</i>	0	0
N	<i>merchant</i>	0	6
N	<i>trader</i>	2	0
M	<i>headmaster/headmistress</i>	0	0
N	<i>principal</i>	2	0
M	<i>chairman</i>	0	0
N	<i>head</i>	1	0
M	<i>waitress</i>	1	0
N	<i>waitperson</i>	0	3
M	<i>goddess</i>	0	4
N	<i>god</i>	1	6
M	<i>fisherman</i>	1	0
N	<i>fisherperson</i>	0	0
M	<i>salesgirl/salesman</i>	0	0
N	<i>salesperson</i>	0	4
M	<i>superman</i>	0	6
N	<i>superperson</i>	0	0
M	<i>congresswoman</i>	2	0
N	<i>congress members/congress people</i>	5	0
M	<i>guard man</i>	1	0
N	<i>guard</i>	0	0
M	<i>landlady</i>	3	0
M	<i>landlord</i>	0	0
N	<i>owner</i>	1	0
Total			
Gender-marked		12	13
Gender-neutral		234	107

Note: The figures include occurrences of the inflected forms of the selected vocabulary.

### Research question 3: What are the common adjectives used to describe women and men?

As shown in Table 7, one notable aspect of the findings is that fewer adjectives were used to portray women in *Orbit*. The more limited range of adjectives associated with female characters has the effect of making them appear more gender stereotyped: females were described mainly in terms of their age and appearance (*x years old, little, old, young*), and emotions (*afraid, annoyed, irritated*). In contrast, more adjectives of different kinds were used to describe men, making male characters more interesting to read about. Aside from the adjectives depicting their emotions (*angry, disappointed, embarrassed*), males were more often associated with physical and mental strength (*tall, big, heavy, strong and brave*), and with success and wealth (*important, rich and poor*). This finding reveals the perpetuation of the gender imbalance and gender stereotyping associated with adjectives noted in some previous textbooks studies (e.g., Carroll & Kowitz, 1994; Evans & Davies, 2000; Hartman & Judd, 1978).

*Unicorn*, on the other hand, displays a comparatively more balanced representation of the two genders in terms of the adjectives used. Although some traditional gender stereotypes were still present (females as *afraid, quiet* and *weak*; men as *rich, tall, great, intelligent* and *good* at fixing things), some unconventional adjectives portraying females were in evidence: *first, courageous, thoughtful* and *unpatriotic*. This could be explained by the fact that the writers of *Unicorn* have included topics about women's achievements; there are stories about the world's first full-time female percussion soloist and the first American congresswoman. This finding reveals the importance of incorporating texts depicting women's accomplishments

**Table 7**  
Personal adjectives collocating with *she/he, woman/man, men/women, boy[s]/girl[s]*.

Book	Gender	Adjectives
<i>Unicorn</i>	M	<i>x years old</i> (7) <i>little, rich</i> (3) <i>good</i> (at fixing bikes), <i>happy, obsessed</i> (2) <i>alert, better</i> (at turning 3-D objects), <i>bright, big, convinced, critical, deaf, fine, fond, gentle, great</i> (composer), <i>injured, intelligent, kind, lost, pleased, relaxed, sick, silent, tall, surprised, tough-looking, young, upset, well-known</i> (1)
	F	<i>young</i> (6) <i>first; x years old</i> (3) <i>afraid, aware, hungry, mad, old, quiet</i> (2) <i>amazing, cheerful, courageous, elderly, friendly, guilty, little, nice, surprised, tall, thoughtful, unpatriotic, upset, weak</i> (1)
<i>Orbit</i>	M	<i>young</i> (4) <i>important, tall</i> (3) <i>gentle, injured, lonely, old, rich, warm, white</i> (2) <i>absent, angry, big, brave, confused, dark-haired, dead, disappointed, embarrassed, good, heavy, quiet, poor, self-reliant, strong</i> (1)
	F	<i>x years old</i> (4) <i>young</i> (2) <i>absent, afraid, annoyed, awake, irritated, little, old</i> (1)

Note: The number in brackets shows the frequency of occurrence.

into textbooks in order to break gender stereotypes and provide female students with unconventional models for personal and career advancement.

*Research question 4: What are the common types of activities associated with men and women?*

To investigate what activities the two genders are likely to be engaged in, Mutual Information (MI) was computed for the collocates of the pronouns *she* and *he*. The collocates with MI higher than 5.4 are presented in Table 8.

The relation statistics show subtle gender demarcation: there was a higher tendency for the writers to associate the pronoun *he* with “saying” verbs, including *insisted, tells, orders, shouting and talked* in *Unicorn*, and *express, commanded* (in a loud voice) and *promised* in *Orbit*, suggesting that men were more likely to be the speakers in texts. Further, men were portrayed as more active: *fixing bikes, fought in wars, painted pictures* (with women being models), and played *kabaddi* in *Unicorn*; joined a *major league team* as a baseball player, *led* (his men on a dangerous journey), was *seriously injured* (in a horse-riding show), and *brought his tools* (for committing crimes) in *Orbit*. On the other hand, women were more likely to be portrayed as weaker and as engaging in child care: in *Unicorn* there was depiction of needing a *bodyguard for safety*, getting *hungry*, being *afraid* of waking up the baby, and making a *dress* for a daughter. Compared to men, the activities engaged in by women were less energy-demanding (e.g., *plays the piano, gives musical performances*). Nevertheless, challenges to women’s traditional roles could also be found in *Unicorn*. The pronoun *she* collocates with such nouns as *audiences and speeches* (giving speeches for women’s rights throughout the world), and such verbs as *elected, voting and voted*. These findings revealed the textbook writers’ attempts to incorporate women’s success and achievements into the texts.

*Research question 5: What are the common address titles used for women?*

In the present enquiry, two instances of *Ms* were noted in each of the two sets of textbooks examined, along with two instances and seven instances of *Miss* found in *Unicorn* in *Orbit* respectively (see Table 9). Not a single instance of *Mrs* was attested in either textbook series. Whether *Ms* has been given its full neutral meaning by textbook writers or whether it has been used by some writers as a substitute for *Mrs* is worth exploring further.

*Research question 6: What is the order of appearance of women and men?*

As in previous investigations (e.g., Amare, 2007; Lee & Collins, 2008, 2009; Porreca, 1984), the paired expressions identified in the present study indicate a tendency for male gendered terms to be presented before female gendered terms. As shown in Table 10, while *Orbit* recorded six instances of male firstness and one instance of female firstness, the corresponding figures for *Unicorn* were 35 and seven respectively. Of the 35 instances of male firstness in *Unicorn*, five are paired pronouns (*he or she, his or her*), nine show consistent male firstness for *Mark and Delia* (see Fig. 2), and 14 consist of *men and women* (see Fig. 3). The deeply entrenched male-first practice reveals the subsidiary role females play in some Japanese textbooks.

It is worth noting that all the concordances displayed in Fig. 3, which show consistent male firstness, are excerpted from Units 5 and 6 of *Unicorn II*. Although challenging gender stereotypes seems to be the main purpose of both units, the authors appear to be faithful followers of male firstness, whether consciously or subconsciously. The assumption that a change from conventional expressions such as “Mr and Mrs X” to “Mrs and Mr X” may arouse opposition because of “unnaturalness” and

**Table 8**  
Collocation relationship with *he* and *she*.

Unicorn				Orbit			
He	MI	She	MI	He	MI	She	MI
painter	7.751	youth	8.948	October	7.238	she	8.622
insisted	7.751	regretted	8.948	leaving	7.238	feeling	8.544
insulted	7.751	she	8.048	careful	7.238	wasn't	7.959
tells	7.751	audiences	7.948	express	6.501	might	7.544
he	6.898	bare	7.948	he	6.348	going	6.544
obsessed	6.751	crackling	7.948	education	6.238	won't	6.374
orders	6.751	entertained	7.948	team	6.238	thought	6.085
bikes	6.751	speeches	7.363	waved	6.238	go	6.085
fixing	6.751	hill	7.363	noticed	6.238	young	5.737
avoided	6.751	stepped	7.363	injured	6.238	said	5.514
comfort	6.751	feels	7.363	hasn't	6.238	don't	5.457
spending	6.751	elected	7.363	commanded	6.238	made	5.457
fond	6.336	rose	7.363	led	6.238		
forty	6.166	shortly	7.363	slowly	6.238		
shouting	6.166	bodyguard	7.363	might	6.238		
tent	6.166	voting	7.211	rich	6.238		
appear	6.166	guilty	6.948	walked	6.238		
pochi	6.166	montana	6.948	ah	6.238		
pocket	6.166	wants	6.948	suspected	6.238		
freed	6.166	received	6.948	wish	6.238		
irritated	6.166	piano	6.626	carefully	6.238		
kolkata	6.166	plays	6.626	feeling	6.238		
given	6.166	realize	6.626	tried	6.046		
wars	6.014	graduated	6.626	meeting	5.823		
dictionary	6.014	hungry	6.533	done	5.823		
dreams	6.014	gave	6.462	objects	5.823		
fought	6.014	voted	6.363	brought	5.823		
kabaddi	5.944	doubtful	6.363	tools	5.753		
head	5.944	safety	6.363	notice	5.653		
solved	5.751	news	6.363	point	5.653		
mostly	5.751	performance	6.363	voice	5.653		
learns	5.751	stood	6.363	promised	5.653		
likes	5.751	dress	6.363	league	5.653		
succeeded	5.751	gives	6.363	seriously	5.653		
keeps	5.751	letter	6.211	mind	5.653		
painted	5.751	returned	6.14	major	5.653		
probably	5.751	cheerful	6.14	loud	5.653		
pay	5.751	believed	6.14	believed	5.653		
flowers	5.751	worked	6.073	always	5.653		
object	5.751	feet	6.073	clearly	5.653		
dialect	5.751	aware	6.073	wrote	5.653		
regardless	5.751	seems	6.022	still	5.653		
doesn't	5.751	something	5.948	embarrassed	5.653		
studied	5.613	opposing	5.832	everyone	5.653		
fell	5.581	whether	5.778	contract	5.653		
perhaps	5.529	DDT	5.778	felt	5.431		
write	5.529	necessary	5.778	sent	5.431		
names	5.529	woman	5.778				
wife	5.429	eyes	5.778				
ate	5.429	far	5.626				
restaurant	5.429	pay	5.626				
arrive	5.429	college	5.626				
closer	5.429	kept	5.533				
separate	5.429	lessons	5.488				
stopped	5.429	afraid	5.488				
discovery	5.429	lived	5.488				
wrote	5.429	knows	5.488				
talked	5.429	speaking	5.488				
unfamiliar	5.429	her	5.454				
understood	5.429						

“unidiomaticity” does not hold for other coordinated noun phrases, as *women and men* and *Delia and Mark* are as idiomatic as *men and women* and *Mark and Delia*. If there is a belief, at least on the part of some readers, that the female-second tendency implies female inferiority, alternating the order of appearance of females and males in a text is one step that textbook writers should take towards fairer representation of the two genders.

**Table 9**  
Female address titles.

	<i>Unicorn</i>	<i>Orbit</i>
Miss	2	7
Mrs	0	0
Ms	2	2

**Table 10**  
Order of mention (coordinated by *and/or*).

	<i>Unicorn</i>	<i>Orbit</i>
Male first	35	6
Female first	7	1

was shot by some hunters. 1980. **Mark and Delia** left the Kalahari. 1986  
Bones in the end? Organizer 1974. **Mark and Delia** Owens came to Botswana  
after ten days. 2. Bones visited **Mark and Delia** when they were asleep.  
and Delia left the Kalahari. 1986. **Mark and Delia** began working to prese  
lay outside their tent? 13. Why did **Mark and Delia** worry when the animals  
and Delia Owens Before you read **Mark and Delia** Owens Kalahari Hyena,  
Lesson 2 Sleeping with lions by **Mark and Delia** Owens Before you read  
his loose, hanging skin. 4. Where did **Mark and Delia** set up their base camp  
How many lions were sleeping around **Mark and Delia**? Delia and I were zoology

**Fig. 2.** Male-firstness: *Mark and Delia*.

more difficult than in many places. **Men and women** worked as equals with  
much of the hard outdoor work. But **men and women** were not equal in many  
( ) in 1880. Life was hard there, and **men and women** worked as ( ) with the  
intelligence, as was once thought. **Men and women** perform similarly on in  
in how their brains work. When **men and women** are given a certain  
task. The same pattern occurs when **men and women** experience feelings of  
we can find differences in how **men's and women's** brains develop. Most are  
have found differences between **men's and women's** brains. It's very exciting  
differences we find between **men's and women's** brains, most scientists  
outside the brain. "If you have a **man and a woman** looking at the same landscape  
x difference Left, right **Men's and women's** brains are different.  
on the differences between **men's and women's** aptitudes, anyway? Is it  
differences we find between **men's and women's** brains, most scientists  
that have found ( ) between **men's and women's** brains is ( ) these year

**Fig. 3.** Male-firstness: *men and women*.

He laughed aloud! **My mother and father** and aunt and uncle  
My mother and father and **aunt and uncle** were all dumbfounded  
hundreds of years. **My mother and my grandfather** and everybody  
week alone with him. **My mother and brother** were away on a  
But really you are **mothers and fathers**, sisters and brothers  
mothers and fathers, **sisters and brothers**. And each of you

**Fig. 4.** Female-firstness.

Interestingly, as shown in Fig. 4, six of the seven exceptions to the male-first tendency found in *Unicorn* are concerned with women's familial roles (e.g., mother, aunt, sister), suggesting the premium placed on the role of females in the family context and echoing the culturally entrenched stereotypes embodied in such English and Japanese proverbs as "A man's home is his castle" and "A woman's place is in the home", 男 性 外、女 性 内 (A man's place is outside, and a woman's place is within).

## Conclusions

The present study illustrates how the use of corpora and computing software can introduce a reliable quantitative dimension to gender studies. This corpus study, using WordSmith tools, helps deconstruct the hidden curriculum and the asymmetrical ways in which the two genders are represented in the textbooks examined. Alongside the social changes effected through such instruments as the new Basic Act on Education, passed in 2006, and MEXT's efforts to promote a gender-fair society, there is evidence indicating that the textbook writers have shown some awareness of the need to support gender equality, at least to a certain extent, including (1) use of gender-inclusive terms in place of gender-biased vocabulary when they refer to people in general or when the gender of the referent is unknown, and (2) use of the neutral title *Ms* to address women.

Nevertheless, gender bias against women is still prevalent in the books examined. Although demographic figures show that the female population has surpassed the male in Japan ([Statistics Bureau of Japan, 2011](#)), the uneven frequency of depiction of men and women, with more appearances of the former, suggests that women are of less importance and are less-worthy of mention than men. This gender ideology is reinforced by the textbook writers' tendency to portray men as the protagonists in most chapters. In addition to the under-representation of females, gender stereotyping is another issue that merits the writers' attention. The higher frequency of saying verbs associated with men implies that they do more talking than women. The collocational analysis also reveals that men are more likely to be engaged in physically demanding activities and to be valued in terms of their wealth, achievement, wisdom and courage, whereas women are more likely to be associated with family care, indoor activities and emotional fragility. Meanwhile, the widespread practice of male-firstness confirms the deep-rooted prejudice in favour of male supremacy and female inferiority. Reinforcement of this patriarchal social order is witnessed when familial roles are mentioned, echoing the traditional, stereotypical view that Japanese women's place is within the home.

Schools teach more than the formal curriculum. Textbooks relay to students a hidden curriculum that can reinforce or challenge their values and beliefs about gender identity. If misrepresentation of the two genders is present in the texts and students have accepted the dominant assumption of biased gender roles, it can be difficult to unlearn this in later life. In order to prevent students from developing gender bias and stereotypes about themselves and about the opposite gender through the unstated norms and values hidden in textbooks, it is suggested that MEXT compile guidelines to help textbook writers, publishers and teachers to strive for gender equality in educational materials. These should include (1) balanced representation of men and women throughout the book, (2) sufficient depiction of important women, (3) defiance of gender stereotyping in terms of activities performed and characteristics displayed, (4) avoidance of sexist language, (5) symmetrical address of women and men, and (6) adoption of alternate ordering of men and women. The use of corpora and modern software tools by writers and publishers to examine the frequencies of occurrence of gendered terms and their collocates would facilitate the creation of a more egalitarian classroom. These corpus linguistic techniques could also be adopted by MEXT in their scrutiny of textbooks.

## Limitations of the study

The present study included a selection of two series of textbooks for senior high school students. The writers were mostly males. Its limitation is that the findings may not be generalizable to other textbooks. A large-scale investigation based on a larger corpus of textbooks for different levels of students and written by writers of different genders would broaden our understanding of whether gender construction is associated with the level of studies and the gender of the writers.

The corpus study presented in this paper can be preliminary to further systematic explorations of how the two genders are constructed with other kinds of data. The hard evidence collected through the concordancing techniques provided an objective, quantified description of the frequency of occurrence of the criteria used in the study. Qualitative analysis, on the other hand, can provide insights into the way discourse reproduces or resists gender-based inequality. For example, Reading 3 of *Orbit* contains three instances of the feminine pronouns *she* and *her*, and no instance of masculine pronouns. A mere frequency count of masculine and feminine pronouns may lead to the conclusion that females have better visibility in contemporary textbooks, which ignores the fact that the text in Reading 3 is an email message between two men about a "Sleeping Beauty" on the train, in which the woman being watched by one of the men is described in terms of her physical beauty. This suggests that a combined use of interconnected quantitative and qualitative methodologies would provide more reliable data to expose the "taken-for-granted" ideological messages relevant to sexism in school texts.

## Acknowledgement

This study was made possible by a research grant from Meijo University, Japan. I would like to express my gratitude to Professor Yasumi Murata for her kind support during the research.

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