



**Measuring Change of Moral Values in the Collective  
Consciousness  
as a Result of a Moral Education Lesson**

**Kohtaro Kamizono**

These are unpublished conference papers for the 'Can Virtue Be Measured?', held by the Jubilee Centre for Character and Values at Oriol College, Thursday 9<sup>th</sup> – Saturday 11<sup>th</sup> January 2014. These papers are works in progress and should not be cited without author's prior permission.

**School of Education  
University of Birmingham  
Edgbaston  
Birmingham**

# Measuring Change of Moral Values in the Collective Consciousness as a Result of a Moral Education Lesson

Kohtaro KAMIZONO, Ph.D. (Professor of Nagasaki University, Japan)

Yen-Hsin CHEN, Ph.D. (Associate Professor, National Chung Cheng University, Taiwan)

Kenji MORINAGA (Principal of Jojima Elementary School, Japan)

## (Summary)

The association method gathers free recalls of participants, and makes total consciousness visible in the form of an association map which measures tendencies of consciousness about a moral value both qualitatively and quantitatively.

We shall focus, by way of an example, on a moral education lesson with the theme of sympathy, using a folk story, and employing a method of cooperative group-learning. The deep purpose of the lesson was to enhance pupils' self-affirmative consciousness, as this is low in Japan compared with other cultural areas like the United States of America, China and Korea<sup>1)</sup>. We expected the lesson would achieve the goal of inspiring consideration for others based on increased self-affirmative consciousness. The lesson was carried out with 32 children, aged 8-9 years, at an Elementary School in Fukuoka prefecture in 2011.

Comparing response words before and after the lesson, a new definition of sympathy appeared as “think of others”<sup>2)</sup> (newly appearing in 40.6% of children). Before the lesson sympathy was represented by the word “tender” (25.8% of children) for the pupils. After the lesson, the word “tender” (21.9% of children) did not disappear, and remained in their consciousness. It means that the lesson did not negate or change the consciousness of children about sympathy, but added a new idea of it.

Though the teacher did not comment on any self-affirmative consciousness during the lesson, children came up with “tender” (newly appearing in 25.0% of children) themselves during the lesson, according to the response to a cue word ‘me’. Furthermore, the category of ‘self-affirmative’ of the cue word increased significantly ( $p < .05$ ) from 58.1% to 196.9%<sup>3)</sup> of all pupils. Children reflected greatly about themselves during the lesson, indicated by a 50.6% increase in the number of kinds of response words, a 38.0% increase in all response words, and a 0.7 increase in entropy to the cue word.

These data of association method illustrate the collective change of moral values among children in a 45-minutes lesson both qualitatively and quantitatively.

Key words: association method, moral education lesson, assessment of collective consciousness, qualitative and quantitative assessment

## I. Introduction

A pre-and-post assessment of moral values is an essential *raison d'etre* of a moral education lesson, especially in East Asian countries like Japan, where moral education forms part of the curriculum. A moral education activity, whether it is officially described as religious studies, character education or moral education, should be assessed in terms of its influence and effectiveness. Especially a moral education lesson, which is fixed in a curriculum as a 40, 45 or 50-minute event, requires a method of assessment, given the need for moral education, since this subject area has been criticized for its lack of visible results. In Taiwan moral education is integrated with other life subjects, so the process of assessment of value seems more complicated. This complexity rather means that there is a necessity to demonstrate the influence and effectiveness of moral education lesson or the moral effect of a lesson. When an activity in a school aimed at the morality<sup>4)</sup> of students, it should be assessed according to its influence. Having said that, how could such a short-term event be assessed in its diverse and delicate influence?

In Japan, measuring moral values via a pupil's character is in fact prohibited, because of the reaction against previous moral education, which was implicated as a driving force behind World War II, combined with Shintoism and the Emperor System. We should be careful to teach and measure virtue, from the single point of view of the state and the community, as this may paternalistically guide people in a particular predetermined direction, as was seen – in the case of Japan - in the process of guiding a nation to war. Moral education can be used as propaganda by an authority and assessed according to criteria of character deemed useful for that authority.

Essentially could character be assessed in its change by means of pre-and-post tests after a short-term event or lesson? There is almost universal negative opinion about the possibility of such assessment. The word character refers to a human tendency which is not easily changeable. Therefore, tests for individual character analysis have little value as an assessment of a moral education lesson.

We will insist in this paper that moral values as a cognitive factor can be measured, in a collective way, which nevertheless accepts the diversity of each person. A moral education lesson should be assessed in terms of its qualitative and quantitative tendency, rather than by simply measuring a value of each individual moral personality.

As a method of measuring a moral value, we have used an association method, which uses free association and gathers response words of participants in a lesson from a cue word in 50 seconds (Kamizono, 2011, pp.132-141). The association method is a product of the integration of philosophy and psychology, aided by association and information theory. As a metaphor it could be compared to a CT scan of the consciousness of attendants in a field.

## II. Association Method

A lesson is a communication field, where not only knowledge, but also feeling, memory and thinking are brought into the field and reorganized during the event. A free word association gathers total word responses from a cue word, not only related to knowledge, but also to feelings and even cultural backgrounds. When we want to make an assessment of a moral value in a moral education lesson, the total analysis of a field is needed. A collective change in the communicative process in a field should be assessed in terms of what has occurred in the cognitive sphere of participants.

The association method was developed originally by a Nagasaki University group, including Kagehiro Itoyama (Itoyama, 2011), Kohtaro Kamizono (Kamizono, 2011) and Takashi Fujiki. In the association method, each response word is calculated as a probability triggered by the cue word, employing information theory to construct an association map, calculated by a computer program.

Association here does not play an essential role in education as in Plato or Augustinus. According to Plato, recollection itself is education (Plato, Meno). Association here is not a philosophical explanation of recognition as in English Associationism. The association method does not measure reaction time of a response word (Martin Trautscholdt, 1883) in order to discover a hidden psychological sphere as described by Jung (C. G. Jung, 1910). Rather than concerning itself with the reaction time of association, the association method here gathers as many response words as possible in a predetermined time span. Furthermore, the concern of analysis here is not a person but a field as a whole, where a group of people gather for communication.

Kent and Rosanoff (1910a & 1910b), and other psychologists did not always measure a response time, but kept gathering one response word from a respondent. The tradition of recording one response word of a respondent from a cue word by association research was followed by many psychologists, such as Jung, Kent and Rosanoff, Entwisle (1966), and Umemoto (1969).

Calculation of response words to make an assessment of a lesson has been discussed (B.E. Garskoff & J.P. Houston, 1963, R.J. Shavelson, 1972). However, their concern was not to build up a visible association map for use by teachers in order to carry out an assessment of their lessons. A form of 'concept map', which shows the relation of meanings in chain between concepts, has also been treated, both as a method and a result of teaching (R. White and R. Gunstone, 1992, Takashi Fujiki et al, 1997). However, the words relating to moral education are not always clearly identified as scientific units, in their meaning and relations. Response words here are calculated by volume of information (bit) based on a number of words per person ( $P_{pi}$ ) and per sum of words ( $P_{wi}$ ), and then converted into an association map. On an association map several parameters as number of kinds of response words, sum of response words, entropy, and volume of all association. An association map can provide a total image of a cue word, and illustrate the gathered word data of a lesson in its entirety.

In this paper we propose a method to combine fragments of recollection of a group into an association map, in order to visualize collective consciousness. We would like to use a terminology of ‘cue word’, because the method of association does not depend on a stimulus-response theory of Pavlovian association, nor does it aim at a universally applicable theory of association. This association method is intended for use in fields, especially in education, where clinical discussion between practice and theory is important.

An association map here also intends to visualize relations of words. In an association map all response words in total are shown. It intends to calculate collective recall from a cue word in order to assess the consciousness of a group. Response words of association are not selected and sorted in the form of sentences, so that all the factors in the mind appear as response words. Moreover, there appear approximately 5 times more response words than written responses to a questionnaire (Kamizono, 2011, pp.141-145). The volume of information is bigger by association in 50 seconds than by responding through sentences in a free answering period.

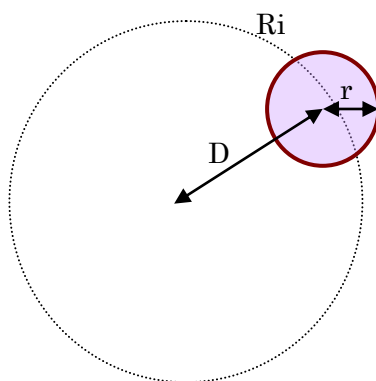
Free association method by single cue word in this paper draws out the following 4 points from words.

1. all recall of a person, conscious or unconscious
2. social consciousness and private recall, with positive or negative feelings
3. conceptual relations, either grammatical or topical
4. common memory and way of thinking in a cultural area

The rough sketch of making association map by this theory is as follows:

1. Response words resulting from association show the consciousness of children, including knowledge, feeling, memory and thinking.
2. When the intention of a lesson has been accepted into the consciousness of children, words related to that intention will be recalled by children and will appear newly or increase after the lesson.
3. A word, to which many children responded, comes near to a cue word in an association map. The words at the edge, furthest out of the whole circle, indicate a word associated by one person. In other words, it has high originality.

An association map by association method is constructed in the following way.



$R_i$ : each Response Word

$r_i$ : radius of each response Word

$D_i$ : Distance of a response word from a cue word (CW).

$D_i$  is described as distance from the center of a whole circle by Association Map.

Figure 1 Structure of an Association Map

In an association map the distance of a response word ( $D_i$ ) from a cue word, In other words the distance from the center of a whole circle ( $D_i$ ) is calculated in the following way:

$$D_i = -\log P_{pi} \quad (\text{bit})$$

$P_{pi}$  means how many respondents had written a certain response word:

$$\text{number of a response word} / \text{number of all the respondents}$$

Volume of association ( $A_i$ ) is used as the growth of a circle of one response word:

$$(A_i)^2 = -P_{pi} \log P_{pi} / \pi \quad (\text{bit})$$

This type of  $A_i$  has been newly used since the year 2004.  $A_i$  do not increase linearly.  $A_i$  becomes maximum in the following case:

$$P_{pi} = 1/e \quad (e=2.71828\cdots)$$

The radius of a response Word ( $r_i$ ) is:

$$(r_i)^2 = A_i / \pi$$

Entropy (H) is calculated in the following way:

$$H = -\sum P_{wi} \log_2 P_{wi} \quad (\text{bit})$$

$P_{wi}$  is the number of a response word in all the response words:

$$\text{number of a response word} / \text{number of all the response words}$$

In this paper we will focus, by way of an example, on a concrete moral education lesson of 45 minutes aimed at the theme of sympathy, by using a folk story as a learning material, and by a method of co-operative learning<sup>5)</sup>. The lesson was planned clinically, according to the needs of the children, in order to enhance their self-affirmative consciousness - a basis for morality - as a purpose of education.

We propose a circular planning of a lesson, which starts from children and ends in children clinically. We have mentioned morality, but we do not intend to construct a moral lesson which is deduced from a list of virtues. Rather we insist on a moral education lesson based on the needs of children. "Clinically" means "according to the needs of children" and the needs of children are the encouragement of their self-affirmative consciousness in Japanese and Taiwanese education. Especially Japanese children's self-affirming consciousness is a cause for concern: 9.8% of 397 students of 13 years old responded with "foolish" for oneself and this word was the second most frequent response about <me><sup>6)</sup>. In Tokyo 30% of 6<sup>th</sup> graders and 31% of 9<sup>th</sup> graders answered negatively to the question about whether they have their own good point<sup>7)</sup>. Japanese children need to be supported for self-affirmative consciousness by education in general, and through moral education in particular.

The lesson's goal here was interpreted as supporting not simply a type of superficial sympathy for another person. Sympathy in this lesson should include the cultivation of sympathy for oneself, from the point of view of the clinical purpose. The purpose of the lesson includes enhancing self-affirmative consciousness of children. Without accepting oneself, it will be difficult to be sympathetic to others.

The moral education lesson was carried out with 32 children, aged 8-9 years, at Jojima Elementary School in Japan in 2011, by Mr. Kenji Morinaga using the folk story of *The Farting*

Bride<sup>8)</sup>.

### III. Change of children’s consciousness concerning sympathy

<Sympathy> is an intended value of this lesson. Comparing response words before and after the lesson (Table 1), a new definition<sup>9)</sup> of sympathy to consideration others appeared as “think of others” (newly appeared in 40.6% of children) in the consciousness of the children. The response word “not only one’s concern” (newly appearing in 9.4% of children) also shows the same tendency to consider others.

Table 1 Decrease and increase of response words concerning <sympathy>

Decreased words				Increased words				
response word	total	number of difference	percentage of difference per person	response word	total	number of difference	percentage of difference per person	
friend	6	decreased	-5	-16.1	think of others	13	newly appeared	40.6
mind	6	decreased	-4	-12.9	think	4	increased	9.4
fellow	5	decreased	-4	-12.9	important	4	increased	9.4
vigorous	3	disappeared	-3	-9.7	not only one's concern	3	newly appeared	9.4
kind	6	decreased	-2	-6.5	thanks	4	increased	6.3
to assist	3	decreased	-2	-6.5	give way to others	2	newly appeared	6.3
brave	2	disappeared	-2	-6.5	warm	2	newly appeared	6.3
			(abbreviated 1 word difference)	feeling	2	newly appeared	6.3	
				comfortable	2	newly appeared	6.3	
				teach	2	newly appeared	6.3	
						(abbreviated 1 word difference)		

(decreased word, disappeared word, increased word, newly appeared word)

Before the lesson <sympathy> was represented by the word “tenderness” (25.8% of children) for the children (Figure 2). They also responded with “help”, “mind” and to be “kind” (each 19.4% of children), but the objects of kindness were limited to a small circle around themselves of “friend” (19.4% of children) and “fellow” (16.1% of children).

The children seem to have attained an idea of general consideration of others with a broader viewpoint rather than emotion or action within a small circle. This change of consciousness can be seen in the association map of <sympathy> comparing before and after the lesson (Figures 2 and 3).







## IV. Change of children's <me> through the lesson

According to the categorized association map Figure 4, the children devoted over half of all the words to their 'body' (51.3% of all response words, and 261.3% of children) before the lesson. Though the 'positive' proportion is bigger than that of 'negative', "smile" (6.5% of children) is the most frequent positive response, clinically the children of this class needed a richer self-affirmative consciousness.

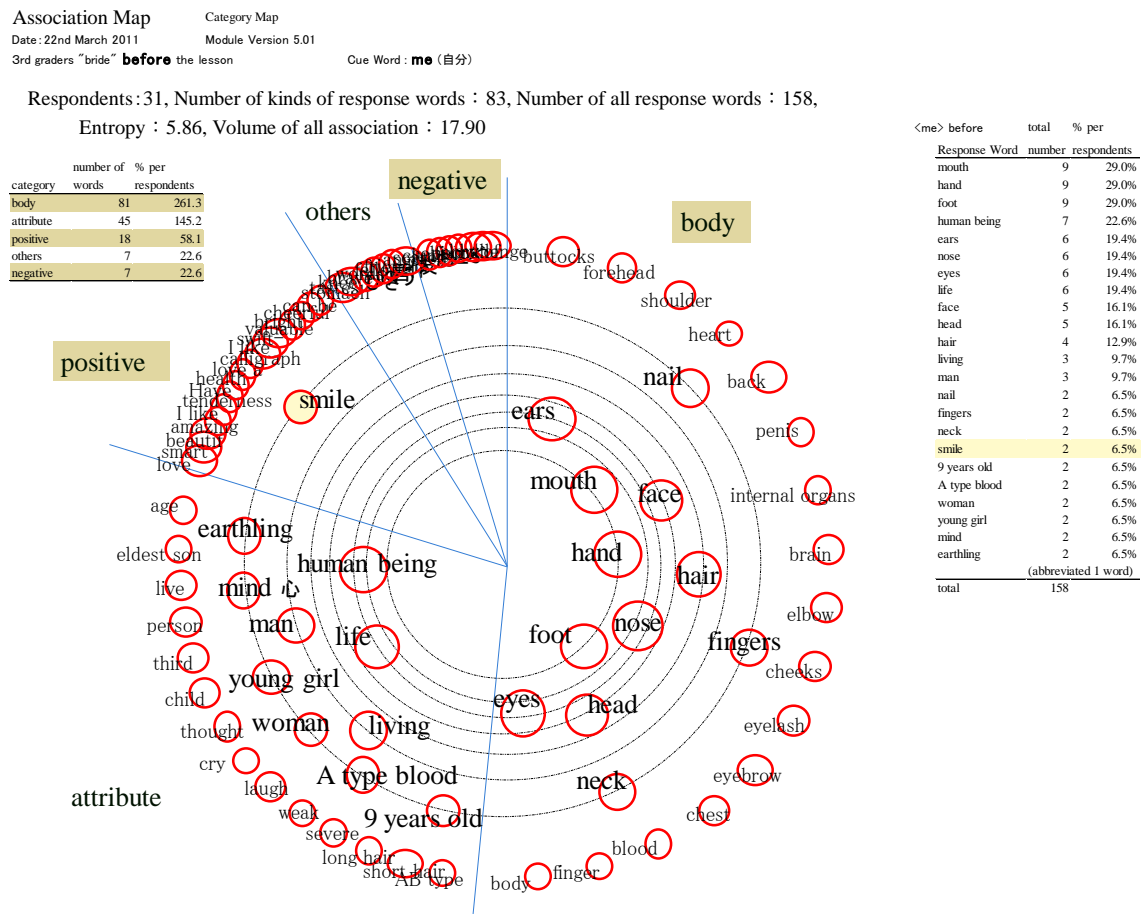


Figure 4 Consciousness of children about <me> before the lesson



Table 3 Comparison of categorical change by cue word <me>

category	number of response words	
	before the lesson	after the lesson
body	81	77 *
attribute	45	61
positive	18	63 *
negative	7	12
others	7	5

(significantly more/less,  $p < .05$ )

The most increased response word to the cue <bride> after the lesson is “tender” (increased 29.0%, from 9.7% to 38.7% of children).

What is more, the definition of the <bride> among the children became clear as a “tender and beautiful woman in marriage” in children’s cognitive sphere, when we combine the response words at the central part of the association map by <bride> after the lesson (Figure 6).

Table 4 Increased response words concerning <bride> after the lesson

Increased words		number of difference	percentage of difference per person
response word	total		
tender	12 increased	9	29.0
woman	18 increased	7	22.6
marriage	10 increased	5	16.1
beauty	4 increased	3	9.7
make up	3 newly appeared	3	9.7
kiss	3 increased	2	6.5
kong hair	2 newly appeared	2	6.5
child	2 newly appeared	2	6.5
person	2 newly appeared	2	6.5
goos at cooking	2 newly appeared	2	6.5

(abbreviated 1 word difference)

(increased word,	newly appeared word)
------------------	----------------------



1. When reflection on oneself at the end of the lesson aided by appropriate learning material combined with an elaborated lesson plan, children seem capable of achieving a more broadminded definition of the aim of the lesson, and to find positive characteristics in themselves.

The lesson aimed at the theme of sympathy was accepted as to think of others, a new definition of sympathy, in the children's consciousness. Moreover they reflected on themselves and found tenderness in themselves. A carefully organized moral education lesson based upon the needs of children can accomplish fruitful results.

2. The most frequent response word “tender” about sympathy seems to have been applied to the main character, the bride, and then transferred reflectively to the children themselves.

In the process of finding tenderness in themselves, the pupils seem to have found also other positive characteristics, so the self-affirmative consciousness in the children increased. Positive words about oneself increased significantly, which was the purpose of this moral education lesson.

3. Association method revealed in detail the results in the children's cognitive sphere, and clarified what occurred in their consciousness according to the lesson. Thus, values can be measured both qualitatively and quantitatively by means of the association method in a collective way.

It will be important to continue to pursue fruitful moral education lessons while continuously assessing them.

## Notes

1) 内閣府政策統括官(共生社会政策担当)、2007、低年齢少年の生活と意識に関する調査第8節自分の悩み、<http://www8.cao.go.jp/youth/kenkyu/teinenrei2/zenbun/index.html>、28<sup>th</sup> May 2012.

財団法人一ツ橋文芸教育振興会・財団法人日本青少年研究所、2012、高校生の生活意識と留学に関する調査報告書—日本・米国・中国・韓国の比較—、財団法人一ツ橋文芸教育振興会・財団法人日本青少年研究所

2) In this paper a response word is shown by “ ”, a cue word by < > and category by ‘ ’.

3) Because a child recalled more than one self-affirming word, the percentage per respondent could be over 100.

4) J.F.Herbert, who described the science of education systematically for the first time, describes morality as a total aim of education. Morality was recognized as a purpose of education from the beginning of the science of education. (cf. The first page of *Über die ästhetische Darstellung der Welt als das Haupt Geschichte der Erziehung* (1804). „Charakterstärke der Sittlichkeit“ in *Allgemeine Pädagogik, aus dem Zweck der Erziehung abgeleitet* (1806).)

5) Regarding the effectiveness of cooperative learning of this lesson, see: Kamizono, K.,

- Morinaga K. (2013), Cultivating Self-Affirming Consciousness through Moral Education-Cooperative learning to stimulate consideration for others-, [https://nuk.repo.nii.ac.jp/?action=pages\\_view\\_main&active\\_action=repository\\_view\\_main\\_item\\_detail&item\\_id=189&item\\_no=1&page\\_id=13&block\\_id=17](https://nuk.repo.nii.ac.jp/?action=pages_view_main&active_action=repository_view_main_item_detail&item_id=189&item_no=1&page_id=13&block_id=17) (Japanese)
- 6) 上藺恒太郎 (2007), 長崎県の教育の課題 自尊感覚を育成する教育を、長崎人権研究所、もやい 長崎人権・学 53 号、2-4
- 7) 東京都教職員研修センター紀要 第 10 号(2011), 自尊感情や自己肯定感に関する研究 (第 3 年次)
- 8) The folk story *The Farting Bride* was chosen and rewritten as material for a moral education lesson by Kohtarō Kamizono. Cf. 上藺恒太郎 (2006), 民話による道徳授業論, 北大路書房
- 9) “Definition” of a cue word is defined in the association method according to the movement of Ppi. When a volume of association of a response word is over 36.8% ( $P_{pi} = 1/e$ ), we say the response word constitutes a definition of the cue word, not when Ppi is 100%.

## References

- Entwisle, D.R., (1966), *Word Association of Young Children*, Baltimore, The Johns Hopkins Press.
- Fujiki, T., Itoyama, K., Kamizono, K. (1997), *Expression of Response Words for Association Test Using Semantic Network*, Technical Report of the Institute of Electronics, Information and Communication Engineers, ET97-35, 1-7 (Japanese)
- Itoyama, K. (2011), *Science of a lesson*, Tokyo-shoseki (Japanese)
- Jung, C.G., (1910), *The association method*, Edit. Read, H., Fordham, M., Adler, G., Mcguire, W., (1973), *The Collected Works Vol.3*, 439-465, London, Routledge & Kegan Paul.
- Kamizono K., Morinaga K., (2012), *Assessment by Association Method of a Moral Education Lesson on a Local Topic in a Mixed-age Class*, Bulletin of Faculty of Education, Nagasaki University: Educational Science No.76, 1-16
- Kamizono, K., (2011), *Assessment of moral education lesson by association method -method of clinical education-*, Kyoiku-shuppan, (Japanese)
- Kamizono, K. (1997), *Evaluation for Moral Education Classes*, Moral and Education, 294 - 295, 47-59, (Japanese).
- Kent, G.H., Rosanoff, A.J., (1910a & 1910b), *A study of association in insanity*, Part I & Part II, *The American Journal of Insanity* Vol.67(1-2), 4-96 & 317-390.
- Morita, Y., Fujiki, T., Jun, B., Lee, S., Watanabe, K., Kamizono, K., Shimokawa, T., Yagyū, D., Nakamura, C., (2004), *A Comparative Analysis of Changes of Student's Attitude between Before and After an International Distance Class*, Proceedings IEEE International Conference on Advanced Learning Technologies (ICALT), 7-11.
- Umemoto, T., (1969), *Standard table of association -by 1000 university students-* (Japanese),

- Tokyo University Press, (Japanese).
- White, R., Gunstone, R. (1992), *Probing Understanding*, (London·New York), 15-43.
- Shavelson, R.J. (1972), *Some aspects of the correspondence between content structure and cognitive structure in physics instruction*, *Journal of Educational Psychology*, 63(3), 225-234.
- Trautsholdt, M. (1883), *Experimentelle Untersuchungen über die Association der Vorstellungen*, *Philosophische Studien*, 1, 213-250.

## Appendix

### The Farting Bride

#### Story 1

Once upon a time, a matchmaker went to a woman to ask her to become a wife, but she said, 'I can't'. He asked her 'why'. 'Because I fart ten times every day'. 'It doesn't matter', he said, and he took her away.

The wife tried not to fart for ten days. Her belly bulged quite a bit. The husband said, 'What should we do with your swollen stomach? You should fart now'. He finally allowed her to fart. She told him to cling to the pillar, and he did so. She broke horrendous wind. He was blown away to the roof of the next-door neighbour's house, crying, 'Help! Help!'. That's the end.

#### Story 2

Once upon a time, a wife arrived. She did big farts. Her farts made persimmons fall from the trees. Her husband was also blown away to the roof of the next-door neighbour's house. He was so shocked, he said, 'I appreciate you became my wife, but...'. They got divorced because of her big farts. That's the end.

#### Story 3

Once upon a time, there was a wife. One day, she did such a big fart that her husband was surprised. The next day was the day for picking persimmons. She said, 'I can fart those persimmons off'. When she farted, a lot of persimmons fell from the trees. The following day, the husband was pulling his cart laden with rice-bags up a hill, swearing a lot. The wife said, 'I will help you', and she farted. The cart went up the slope smoothly. The pleased husband said, 'This is a splendid wife, indeed'. That's the end.

#### Story 4

Once upon a time, there was a good wife, but her farts were appalling, because things on the shelves fell down one after another and the dirt fell from the walls.



The husband said, 'She is a very good wife, and yet I can't bear her big farts'. The wife went back to her original home with her things wrapped in a cloth.

On her way back, she met a villager picking cotton. She suggested to the villager, 'I'll pick all of it by farting'. When she did a big fart, all the cotton floated together to be collected. The villager gave her a lot of cotton in return. On her way, she encountered a horse-puller struggling to leading a cart laden with rice-bags. She said, 'I'll help you', and she farted. The horse and cart rolled along. The horse-puller was most pleased, and gave her a rice-bag.

Having gone back to her original home, the wife sent the cotton and the rice-bag back to her husband to thank him for having taken care of her. In return, her husband said, 'You turned out to be a very good wife. You shouldn't be stopped from farting at all. Please come back and stay here as my wife. We should set up the room for you to fart in. Fart in that room, please'. Having set up a farting room, both the husband and the wife got together again and lived happily ever after. That's the end.