A Study on Expressing Renku with 3DCG Animations and its Evaluation

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ABSTRACT

Recently Renku (Haikai no Renga) is getting popular as well as Haiku in Japan. It was built up by Basho Matsuo, who was the most famous Haiku poet. It is said that Kyoshi Takahama proposed the name of "Renku" to distinguish it from "Renga" and "Haiku" in 1904. Renku meetings are held like Haiku ones regularly now in each place, and in several universities, they conduct a class exercise of Renku continuously. It is very important for plural persons to work together cooperatively. Poetry, Tanka, Haiku and Renku are usually composed of only letters. It sometimes happens that we add pictures to make them more attractive and to aim at synergy by collaboration (letters and pictures). However, the study to produce 3DCG animations of Renku has not been reported very much. Sowe studied to produce 3DCG animations work based on the rule of Renku and its evaluation.

Keywords: Renku, Shikimoku(rules of Renku), art and letters, 3DCG animation, Shade, Factor analysis

1. Introduction

It is said that Kyoshi Takahama proposed it to distinguish the name of "Renku" which was the title of this paper from "Renga" and "Haiku" in 1904[1]. Renku meetings are held like Haiku ones regularly now in each place [2] . In some universities, it is conducted as a class including the training [3] [4]. In late years, with the development of the Internet, the enforcement form has changed. However, it has not changed in co-production. Haiku is based on one independent production, but Renku is based on co-production by plural people. It isnecessary for them to have sense of cooperation. In our time, it offers very important means to improve communication skills and group work ones [5].

About poetry, Tanka and Haiku, we try to aim at synergy of the phrases with pictures to let not only the expression of characters but also written phrases be outstanding more[6]. However, the study of animation expressions about Renku has not been done very much so far. A representative work in Renku animations is a work on "Fuyu-no-Hi (Winter days)" which

Basyo built his orthodox style [7] [8]. This work was evaluated highly, but each artist made his own part independently. Therefore this was not made being conscious of the relevance of phrases that were essential aspects of Renku. In this study, we studied 3DCG animations which were in accordance with the rules of Renku (Shikimoku in Japan) and produced our own works. It is described about Renku in chapter 2 and Conducting Renku meetings in chapter 3. And it is described about the production of a 3DCG Renku animation in chapter 4 and the evaluation experiment of a 3DCG animation of Renku in chaper5. Finally conclusions are described in chapter 6.

2. About Renku
2. 1 Concept of Renku[1]

Renku was Haikai no Renga. It was derived in the Muromachi era and was developed as independent literary arts in the Edo era in Japanese history. It is also called merely Haikai. It follows a style of Renga, and keeps 7-7 syllables after 5-7-5 ones. The style has such as 36 phrases (Kasen in Japanese), 50 phrases (Gojyu-in in Japanese), 100 phrases (Hyaku-in in Japanese). Renku uses more slang and Chinese words than Renga (only ancient Japanese language). Its style and rule also are simple and easy. Renku is expressed with one pair of 5-7-5 and 7-7. A composer should catch an atmosphere of the phrase which is read by the former partner and add his own phrase to the former one with full ideas.

2.2 Research Trends of Renku

(1) Rearch for practices of Renku

Renku is generally composed cooperatively at a single site where fellow-enthusiasts gather all together[2]. Renku meetings are held continuously in each district of Japan, and in universities , there are several cases which students practically compose Renku in a class and learn it for a game style[3].

In late years, the method for practice has been also changed with the development of the Internet. It was the mainstream conventionally that the attendants who gathered in a single site (Za in Japanese) composed phrases by a dealer (Sabakite in

Japasese) and were able to complete Renku. However, with the development of the Internet, Renku was composed at distant locations and asynchronously. Therefore, different works maybe created in new large space and discontinuous time . There is a paper of CREW (Collaborative Renku Environment on the Web)　as the environment construction example that used a network on the Web [9] .

　(2) Research about picturesque expressions of Renku

　　It happens often to take expressions (poetry and pictures) of the collaboration with not only expressions of characters but also pictures so that the poetry (Tanka and Haiku, etc.) are more attractive. We should make efforts to understand a heart of Haiku and draw Haiku pictures plain and light as possible. In the middle of the 17th century of the Edo era, a lot of works of Haiku were drawn in proportion to the prosperity of it. It is said that Haiku pictures were established by Buson Yosa (a Haiku poet / a painter of the middle in the Edo era).　（Fig.1）

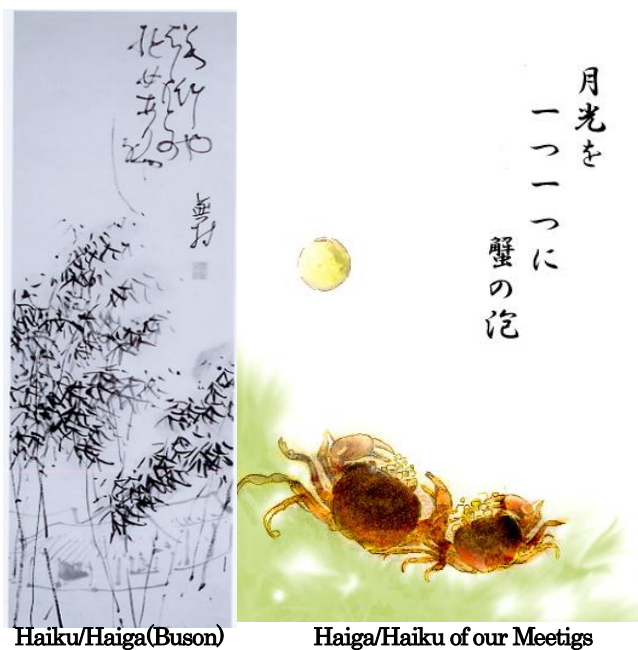Haiku/Haiga(Buson)　　　Haiga/Haiku of our Meetigs

Fig. 1:　Examples of Haiku/Haiga

　　About a paper of this picturesque study, there is an example that paid attention to a multimedia Haiku related to picturesque representations. It aims at the realization of the communication media of the experience sharing model. In animation expressions of Renku, worldwide outstanding 35 animators produced a DVD work about "Fuyu no Hi (Winter days)", which was the base on that Basho Matsuo built his style [8]. The work consists of various animation styles such as watercolor, oil painting, ink painting, doll animation, celluloid picture and CG etc. This work was evaluated at "Media Art Festivals of Japan"

highly. However, each artist had nothing to do with others each other. It was not produced being conscious of the relevance of each essential phrase of Renku. Therefore, in this study, we studied animations which were strongly conscious of a characteristic (rules of Renku) and aimed to produce works about 3DCG animations of Renku .

3. Conducting Renku Meetings
3.1 Renku Meetings

　　Our school played a key role to perform a city college lecture called "Literary arts of Za and its art " in cooperation with universities of our neighborhood. We have carried it out for a half term every year since 2005 and held Renku meetings related to it twice a year (August and February). This time, we held the regular Renku meeting on February (18 phrases: a half of Kasen) [3].(Table 1)

Table 1:　Omote　Rokku (6 phrases in the first)

No.	Renku
1-a	*Nisanzun nobitaru Asano Turarakana.*
1-b	We can see about 6-9 cm ice pillars in the morning
2-a	*Yukifuki damaru Yado no Beranda.*
2-b	It snowed yesterday and the snow is still left on a balcony of an inn today.
3-a	*Wakakihito Syo o yomitumuka Madobenite.*
3-b	A youth keeps reading several books by the window.
4-a	*Ogawa no Kishini Hotaru-kusa saku.*
4-b	Dayflowers are blooming on the bank of the brook.
5-a	*Mikazukui wo narande aogu Nikoge Mittu.*
5-b	Three cats are looking up at the moon in a line.
6-a	*Maichimonji ni Kari Nakiwataru.*
6-b	Geese are flying away with their caw in a straight.
Note:	*a is Japanese words using Roman characters* *b is a meaning of Renku in English*

Table 2:　Minimum Rule (*Shikimoku)*

No.	Season & Moon	Explanation
1	winter	cutting word (ya,keri, kana etc in Japanese)
2	winter	the same season ,place ,time as No.1
3	no season	stopping word (te,ni,nite, ran etc in Japanese)
4	no season	adding to No.3 lightly
5	moon in autumn	A moon in autumn has to be
6	autumn	adding to No.5 lightly

3.2 Rules (Shikimoku) and 6 Phrases in the first Part

This time, we drew up minimum rules when we composed Renku . We had the introduction, development turn and conclusion of the phrases more clearly and modulated them. We decided a minimum rule at a level such as Table 2 to compose Renku more freely . The composed 6 phrases in the first part are shown in Table1. (Omote rokku in Japanese).   Figure 2 and 3 show still images of the first and the second phrase respectively.

三日月を並んで仰ぐ
和毛三つ

Fig. 2:   **Still Image of the 5 phrase**
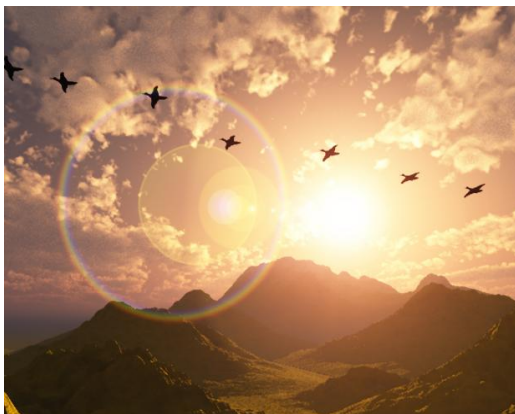

真一文字に雁鳴きわたる

Fig. 3:   **Still Image of the 6 phrase**

4. Flow of the Production

4.1 Purpose

It is usual that Renku is expressed only in letters. We havestudied about static images and 2DCG animations. It is a purpose that we make images of Renku 3DCG animations with multimedia techniques, which are based on the intention of authors and the rules in the Renku meeting.

4.2 Production of 3DCG Renku Animations

The production procedure flow of Renku 3DCG animations is shown in Fig 4. Explanations of the procedure are as follows. This flow is referred to the comic animations which
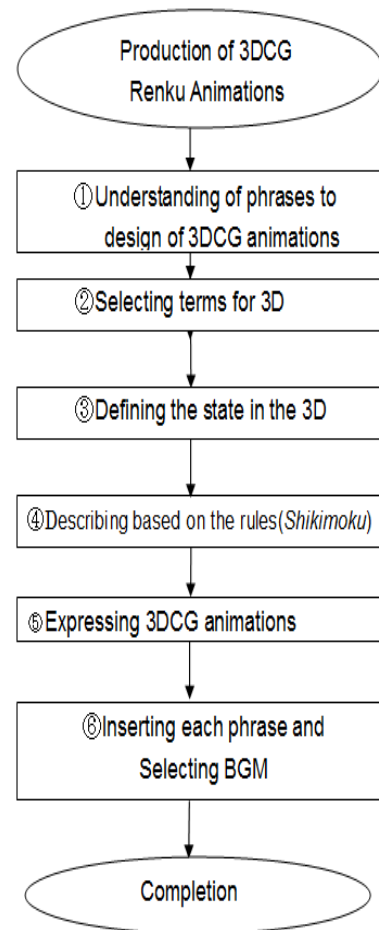
we made before [10]

Fig. 4:   Flow of the production of the 3DCG animation

5. Evaluation Experiment

We made a 3DCG animation reflecting the author's interview and its work description (refer to the attached works).We made the participants display and evaluated this animation in class. They are sophomores of our information design department.

5.1 Experiment Environment

(1) Lesson environment
- Date: July 30, 2008(9:20 to 10:50)
- Curriculum: Basics of Web
- Place: Kanazawagakuin University Room No. 233
- Participants : 43 persons

(2) How to take a questionnaire

The questionnaire was distributed to participants before the lesson. The title names of the group number(1G to 5G) shown in Fig. 5 are not described. The questionnaire consists of marks and free descriptions to each item by the participants. (Five step

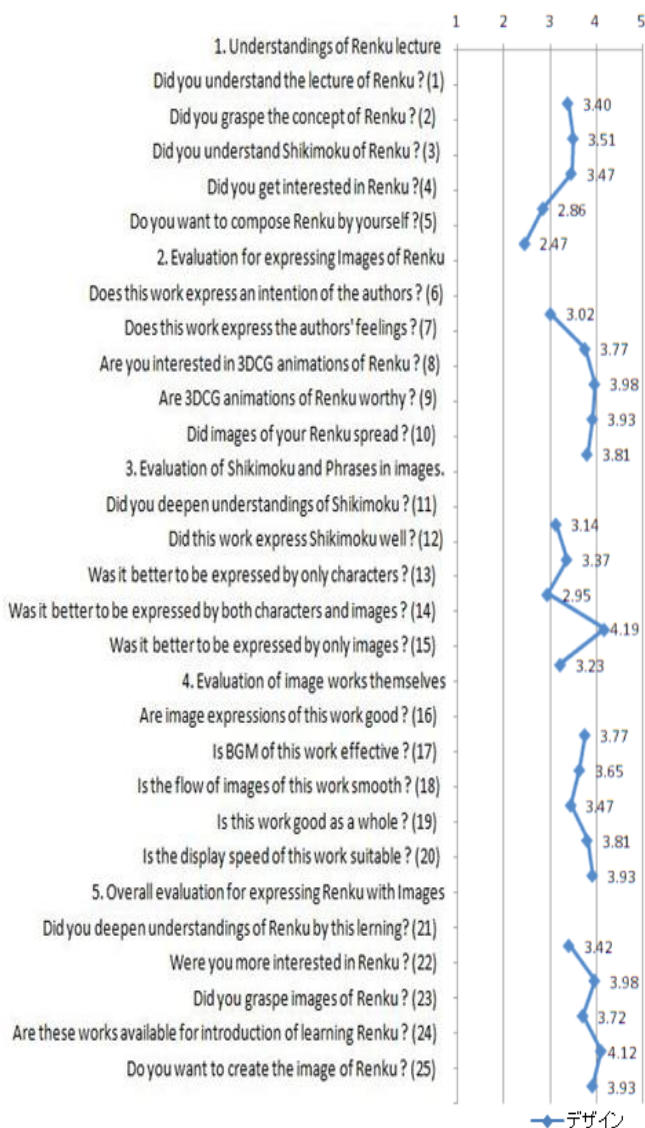evaluation: In the evaluation to a question, five marks are the highest score and one mark is the lowest)

Fig.5 : Graphs of Average marks of questionnaires for each item

5.2 Experiment Procedure

We had a class according to the procedure of Table 3. Then, they described questionnaires distributed before the lesson.

Table 3: Experiment Class for Renku Animation

Time	Curriculum	Complement
9:20～9:50	Lecture of Renku	They had got the data of Renku before this lecture.
9:50～10:10	Presentation of animations of Renku and description of the techniques.	Animation of Renku is explained including a Hiku.
10:10～10:40	Displaying Renku animations and their evaluations	Each student watches the 3DCG animation on PC freely.
10:40～10:50	Conclusions and questionnaires of Renku are filled in.	Questionnaires are collected after being filled in

5.3 The Result of Experiment Evaluation and Consideration

(1) Evaluation of the Lesson of Renku and Animation

"1. Evaluation of the lesson of Renku" (it is written as the 1st G below) was evaluation only with the lecture before showing 3DCG animation. At the time, they had not viewed and listened to the animation yet. There were mainly (1) Lesson of Renku, (2) Image grasp of Renku, and (3) Understanding of Shikimoku in understanding of participants. Those three average mark was 3.46 and was not bad. However, the average mark of "(4) Interest in Renku" and " (5)Composing Renku by yourself " was not high respectively at 2.86 and 2.47. Especially and the latter was quite low. (There is a significant difference by $p < 0.01$). It can be said that they can understand contents of the lesson generally, judging from the group average. However, they are weak about the interest and imagination of Renku only in letters.

After this, it is the evaluation which presents animation. In "2. Evaluation about 3DCG animation of Renku" (the 2G), we asked them whether Renku animation was reflecting "(6)
Intentions of the author" and "(7) Feelings of the authors." Although the former was not so high as 3.02, the latter was as high as 3.77. This is judged to be the same thing at a glance. , In Free opinions, It was said that it was actually a work reflecting the author's feelings, but it was not the work reflecting an intention of the authors.

It was the works which the animator meant. On the other hand, It was so high in both of "interest" and "effectiveness" to the 3DCG animation of Renku . It can be said that making the work of3DCG animation of Renku can evoke creative motivation of the student of an information design department. Moreover, the evaluation about "a spread of the image of Renku" is as high as 3.81. And there were many opinions that the way of thinking in the expressional world of Renku spreads by appreciating animation.

Expression of Renku was estimated by three kinds such as " only characters", "characters + animation", and "only animation" in "3. Shikimoku and the character expressions in animation" (the 3G). In those cases, the evaluation "both characters and animation are good" was as the highest as 4.19 (there is a

significant difference by p< 0.01.).

This had been expected from the impact on expression. Especially the expression of only "characters" was as low as 2.95, and the only animation was not so high as 3.23. There were some opinions to say that it is difficult to express phrases only by animation, but expressing with two elements like "images + characters" demonstrates an animator's power of expression enough.

It can be said that the average mark of "4. Evaluation as an image work" (the 4G) is 3.73, and its evaluation of each item is also high. The average of five items is high and it is almost same in each item mark. (There is no significant difference p< 0.01) . As an image work, it can be said that it was good. We told them that we rather appreciated not focusing on image works connecting with Renku literature but focusing on image works themselves. Therefore, since they were evaluated focusing on image expressions, the average mark was quite high at 3.73. The average mark of "5. Overall evaluation for making Renku into an image" (the 5G) was also as high as 3.83. However, in the question "Did you deepen an understanding of Renku? (21)" of this group, since these were animation works, they mainly enjoyed Renku image works rather than deepened an understanding of them. Therefore, it seemed that it was difficult to take expression techniques of Renku works into consideration. About the interest and introduction to Renku, it is quite as highly motivated as 3.98 and 4.15 at a high score (There is a significant difference by p< 0.05). However, in the field involved in the contents of Renku called an understanding and grasp, the mark of grasp is not so high at 3.42 (There is a significant difference by p< 0.05). Evaluation is quite high when Renku and 3DCG animation are separated and evaluated. However, the evaluation will tend to be low, if the connection with Renku is strengthened and the animation is evaluated. In free descriptions, images are expression forms different from characters, and there wrere some opinions that they would like to make Renku works as the second creation.

(2) Evaluation by factor analysis

Table 4 shows the factor-analysis result centering on the 3DCG animation evaluation of Renku. The 1G is evaluation only for the lesson and is not the evaluation in which animations was involved. Therefore, we considered it the precondition of image evaluation and removed from the object of this factor analysis. In addition, we made them describe the evaluation of the 1G after the lecture of Renku was finished (3DCG animation is not displayed at the time) .

Table4:　Rotated component Matrix

Item No.	Factor 1	2	3	4
(18)	.834	.139	.122	.236
(16)	.831	.143	-.029	.140
(8)	.752	.263	.130	.160
(20)	.718	.201	.296	-.013
(19)	.689	.386	.253	.035
(10)	.592	.448	.218	.103
(23)	.566	.245	.475	-.320
(17)	.512	.294	.113	.439
(15)	.503	.160	.351	.190
(21)	.066	.778	.003	-.297
(6)	.504	.702	.016	-.255
(13)	.251	.697	.272	-.157
(22)	.290	.689	.440	.178
(7)	.321	.594	.427	-.062
(25)	.452	.589	.406	.081
(12)	.342	.549	.417	.225
(11)	.125	.029	.853	-.133
(19)	.083	.342	.731	.145
(14)	.281	.539	.629	.034
(24)	.283	.203	.228	.774
contributing rate	25.6	20.9	15.5	6.8
Accumuration contribution	25.6	46.5	62.0	68.8

We set the evaluation of 20 items (from the 2G to the 5G) as the object of factor analysis. As a result, five factors were extracted (1.0 or more characteristic values), and the accumulation contribution was about 68.8%. This time, analysis of principal component was used for the extraction method of factors and there is no correlation of each item and we judged that factors were independent. Then, the varimax rotation accompanied by normalization of Kaiser was used for the rotation method. The first factor consists of (18), (16), (8), (20), (9), (10), (23), (17), and (15) as an item number. The number of items is nine items. When it is made to correspond to the group name at the time of setting up question items, there are many items in the 4G and the 2G. (77.8% of items is included in two groups) .We named it the evaluation of "Value of making Renku in animation works and image works themselves."

Thereby, the second factor is made to name the evaluation about "the elements of animation expression of Renku and the can-do of production. The

3rd factor consists of (6), (9), and (14), and is considered as "evaluation of image works centering on Shikimoku." And the fourth factor is considered independently as "evaluation about introduction of Renku", although it is only one as (24).

As mentioned above, it is as follows about the evaluation about making Renku into 3DCG animations by the students of an information design department.

-"Evaluation of the value which makes Renku animations and the whole image works ",

-"Evaluation for animation expression elements and the work can-do of Renku",

-"Evaluation for image works centering on Shikimoku"

-"Evaluation of introducing Renku"

The above-mentioned items can judge that the lead in evaluation is taken. As a result, in the case of animators, the tendency for evaluation of work itself to take the lead is in the first place. It turns out well that evaluation of animation works of Renku which is a subject matter is the second. In the evaluation to the students of a Japanese literature department which we carried out before, evaluation of the animation centering on expression with the phrase (characters) of Renku was the first place. It is contrastive with this result.

Moreover, the 2nd factor consists of seven items of (21), (6), (13), (22), (7), (25), and (12). (6), (7), (12), and (13) are evaluations about animation

6. Conclusions

This time, based on the last 2DCG animation works, we made 3DCG animation works. After we had the lecture about Renku and displayed the animations on the students of our information design department, we got questionnaire evaluation and analyzed those with factor analysis. As a result, we obtained the following conclusions.

・As the first, "the value which makes Renku animation and the whole image works " are the most emphasized. The students of our information design department can say that they appreciate from the viewpoint as not image works of literary Renku but completed whole value as works and whole image works.

・As the second, "the expression subject matter

and the can-do which makes Renku animation " are emphasized. So they grasp the real intention of the author's Renku and would like expressions of Renku. (21), (22), and (25) are evaluations about the can-do which makes Renku animations.

to create works with their own individuality.

・As the third, it can be said that the character expression of Renku is emphasized according to evaluation of "an image expression centering on the characters of Shikimoku or phrases."

- As the fourth, evaluation of "worth of introduction to Renku study" is a viewpoint to which marks also want to attach importance highly.

Based on the above subjects, we would like to make efforts to improve 3DCG animation expressions.

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