2.2 Photo Collage of David Hockney

This study's work, MovingCollage, was developed from the idea of Photo Collage by David Hockney (fig.3). Photo Collage was made by putting together some pictures. The feature of Photo Collage is that viewers can see the picture from own viewpoints.

Photo Collage is an attempt to make us think about "cubist vision". In previous painting, we sought "reality of physical appearance" and it was for seeing the known the world. In one hand, cubism brings in "reality of image and feeling" and the other, Photo Collage can be said to be "opposite perspective law" which goes over the time dimension and makes new space, realizing the story's world.

Figure.3 Photo collage of Daivd Hockney [3]

3. MovingCollage

3.1 Concept of MovingCollage

MovingCollage is a new medium that this paper proposes. We can create and view the video pasted with some movie clips at the same time (fig.4).

Moving Collage's image is consisted of different video so the image makes us feel a new meaning like cubism or Photo Collage. In addition, using Moving Collage we are able to create the images easily with movies taken by common digital cameras and cell phone.

The concept of this study is thought to be that Moving Collage makes new relation between human and images. Usually cartoons motion pictures and animated films convey information in only one direction, with no interaction between the work and the viewer. However, in MovingCollage, whoever creates and views can join in the works by using their imaginations. That is the concept of MovingColage.

Figure.4 Example of MovingCollage works

3.2 Constitution of MovingCollage

MovingCollage is consisted of simple functions mainly, importing and regulating video clips (scaling, flip horizontal, change transparency, etc.), and save. When we make MovingCollage's image, we drop video clip from "video library " into "collage stage" then the video clip begins to play. Repeating this operation, we will make collaged movie (fig.5). It is possible to attach to BGM to MovingCollage's image, change background color, and save the data.

MovingCollage is run on the Adobe AIR. MovingCollage is developed with ActionScript 3.0 and MXML. Another feature is that MovingCollage can be use on the OS of Windows and Mac. In this study we tried to interface so that everyone can work MovingCollage's image easily.

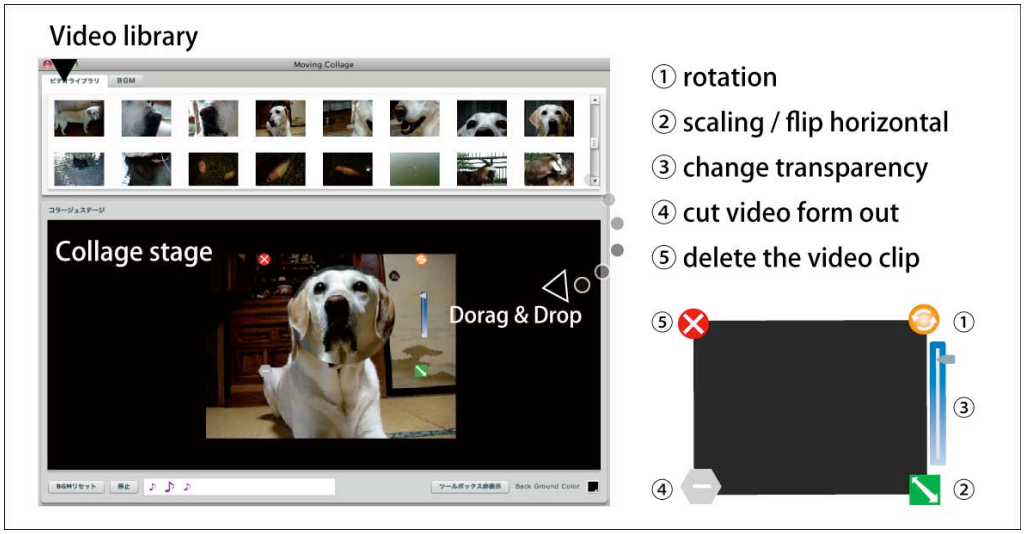

Figure.5 Main functions of MovingCollage

4. Experiment 1: Effects of appreciating MovingCollage's images

4.1 Purposes and Method

Cognitive experiments were conducted to make certain that we could be more creative with MC than common medias like TV and movies. The first experiment focused on the process of appreciation by only observing the feelings derived from prepared MovingCollage images.

In this experiment, 27 participants (male: 13, female: 14) watch the MovingCollage's image with two type arrangements, MovingCollage's (MC) indicates collaged images and Normal (N) is the images arranged on grid (fig.6). They compared the two arrangements images and checked the feeling on questionnaire and results were analyzed by semantic differential method using 15 pairs of adjectives. In the questionnaires, we asked estimate of feeling and images, noticed things and free composition from the images.

Figure.6 MC and N's samples and the experiment environment

4.2 Results

From this experiment we found that the participant could create original images when they watch images consisting of some different videos. For example, one participant said that he could imagine a girl walking in nature from the MovingCollage's image (MC1 in fig.6). He compensates information by imagining relations between some videos. Another, we found that it is easier to imagine something by collaged image rather than images arranged on grid (table.1), because collaged images show us little information and relations each video.

Thus, viewers can think of the story and movie's flow by some video clips. MovingCollage's images have appropriate amount of freedom and flexibility.

In addition, this study sought the result of semantic differential method by principal factor method with varimax rotation, and found organized 3 factors (table.2). We decided to call 1st factor "Excited Emotional Factor", 2nd factor "Originality & Dynamic Factor" and 3rd factor "Communication & Affinity Factor". Then, form the factor point mean (fig.7), there is not difference from MovingCollage and Normal on "Excited Emotional Factor", but MovingCollage is higher than Normal on Originality & Dynamic Factor. It shows that watching more than one movie at once get us excited feeling, and we feel their originality and dynamic in the MovingCollage.

Table.1 Comments for MovingCollage and Normal

	MovingCollage	Normal
Positive comment	• There is the flow between each movie. • It is easy to imagine. • It seems to making a peace image by viewing • I have never seen these images. • It is well organized.	• It is a little difficult to imagine because there are movies discretely. • I got the urge to put some videos together. • It seems to talk between one video clips and others.
Negative comment	• MC's images look like almost perfect like a movie, so it is difficult to imagine (for MC3).	• I don't know where I should look because there are many videos. • I couldn't imagine.

Table.2 The extracted factor of 15 pairs

			Factor		
			1	2	3
Excited Emotional Factor	Q3. funny	Q3	.836	.318	.117
	Q4. favorite	Q4	-.762	-.046	-.265
	Q1. positive	Q1	.629	.074	.438
	Q6. never get tired	Q6	.615	.443	.023
	Q5. broad	Q5	-.534	-.259	-.286
Originality & Dynamic Factor	Q13. innovative	Q13	.256	.620	-.393
	Q9. aggressive	Q9	-.370	-.612	-.247
	Q7. dynamic	Q7	.126	.601	.168
	Q10. pervasive	Q10	.159	.544	.054
	Q11. free	Q11	.328	.527	.208
	Q15. elemental	Q15	.288	-.461	.232
Communication & Affinity Factor	Q2. affable	Q2	.285	.230	.736
	Q8. easily viewable	Q8	.139	.155	.680
	Q12. clearly	Q12	-.279	.294	-.556

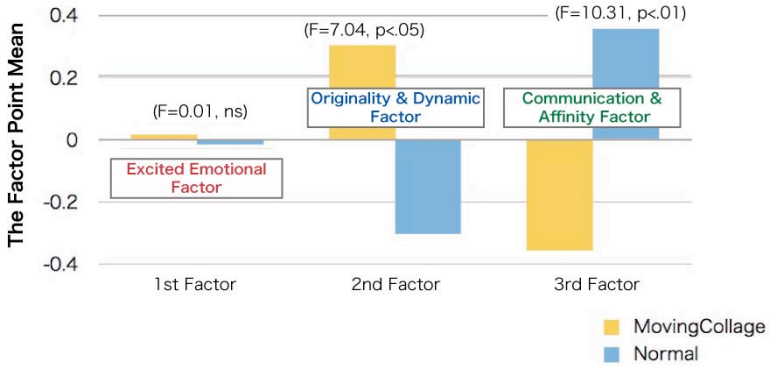

Figure.7 The factor point mean between MovingCollage and Normal

5. Experiment 2: Effects of making MovingCollage's works

5.1 Purposes and Method

For the second experiment, a one-day workshop was planned using MC (fig.8, fig.9). This workshop was for confirming that it was possible for us to create works using MovingCollage and what kinds of relation there are between creator and viewer.

In the workshop, 14 participants took part in and created works, which were shared with the other participants. In the morning, the outline of MovingCollage was explained and everyone tried to make images with prepared video library. In the afternoon, the participants took movies with digital camera and created their original MovingCollage works. At the end of the workshop each work was shared and questionnaires were filled to get feedback of the different impression of the creator and viewer.

Figure.8 MovingCollage Workshop #1
(Left: works in the morning, Right: taking the movie at afternoon)

Figure.9 MovingCollage Workshop #2
(Left: MovingCollage's works, Right: the participant appreciation)

5.2 Results

When the participants created their collages they took movies of familiar places and things to express their ideas. Creating MovingCollage's images with each original video, the works got more creative. For example, work1 was made in the morning with prepared videos. It is an interesting combination, but work2 come with a twist. Same work1's participant made Work2 in the afternoon. In Work2, the participant used video clips showing the water flowing "down" and when it was rotated 180 degrees, it looked as if the water was flowing "up" (fig.10).

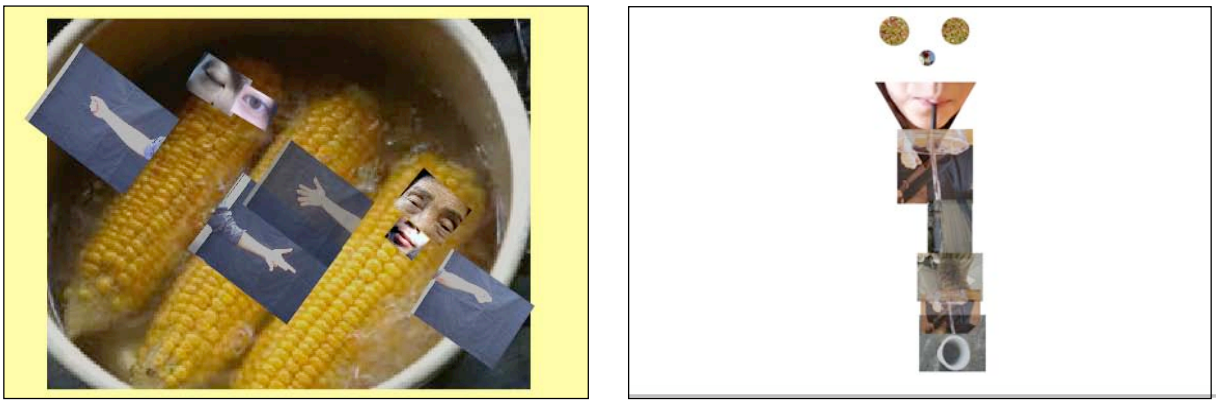

Figure.10 Comparing of works with original videos or not
(Left: Work1 with prepared library, Right: Work2 with original videos)

Also it was found that participants could create new methods for making MovingCollage's images themselves. For instance, one participant expressed the movement in 2D by arrow's motion and tire's rotation (fig.11). There is also works, which looks like 3D computer graphics (fig.12). This creator used simple pattern move for works.

We were surprised at the participants' unique and original ideas, so we thought that experience of MovingCollage brings out creative activity and opportunity for participants. In addition, according the questionnaire, where we asked about their impression for MovingCollage, there are few negative things (fig.13). Almost all answered that MovingCollage made them think and used their imaginations.

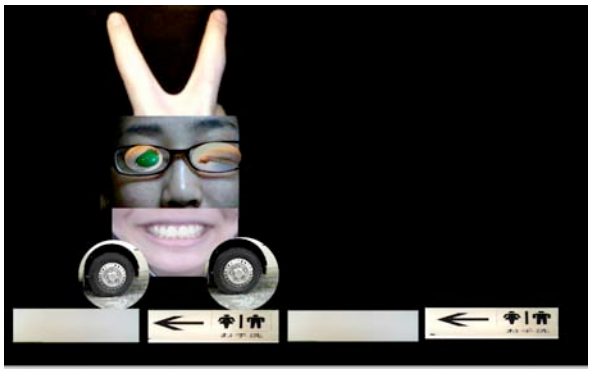

Figure.11 title "rabbit's car"

Figure.12 title "conversation"

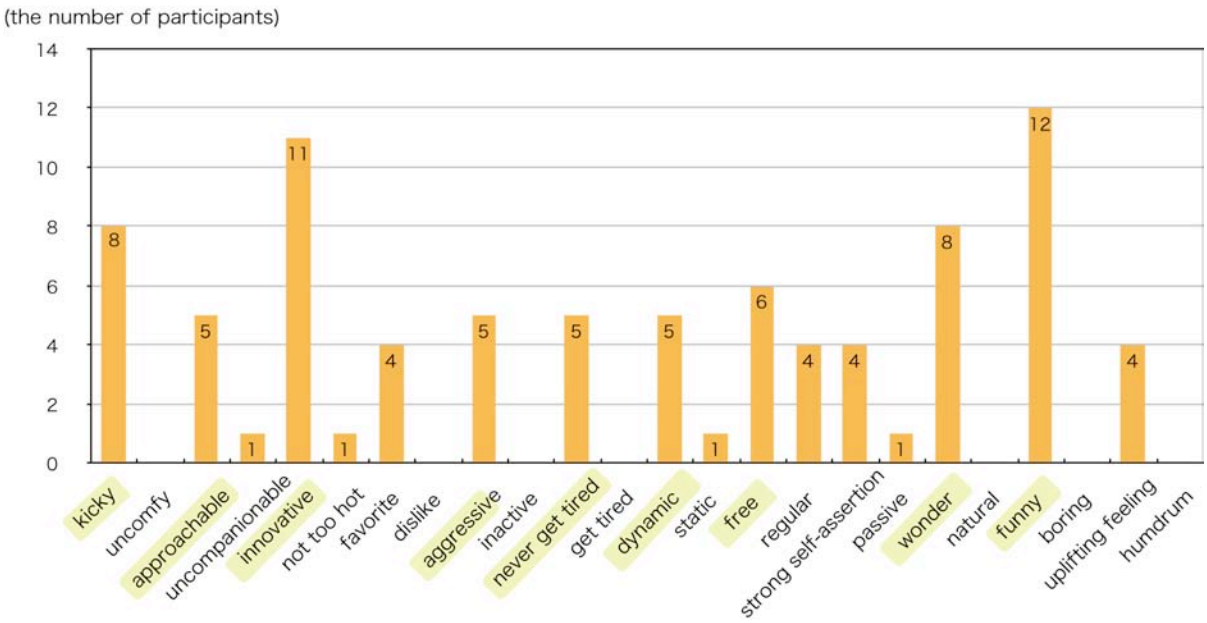

Figure.13 Result of MovingCollage's impression

6. Conclusions and Future Works

According to these experiments, MovingCollage experience enable to inspires us to get a sense of "discovery" when we are creating and viewing. We can think and imagine from MovingCollage's image because these images are consisted on some videos. Collaged images make the story flow and help us to guess. Compared with present medium, TV and movie, MovingCollage is flexible (fig.14). The images' flow and story is decided depending on the viewer's interpretation.

In addition, MovingCollage created new relation between images and human. It is the relation that everyone can experience between the images' creator and viewer. Before, It was clearly that creator and viewer were separate in TV and movie, but MovingCollage makes it possible to get creator and viewer together. It is possible to make images for MovingCollage with common PC and digital camera.

In the future, we think that MovingCollage can be used as a simple and convenient art; the MovingCollage's image projects onto plaster figure (fig.15), "new style album" and "move cooking recipe" (fig.16). Then, we need to think about the way to making collage more appropriate for developing well.

Finally, MovingCollage is an attempt to explore a different viewpoint and to study basis for thinking about new media.

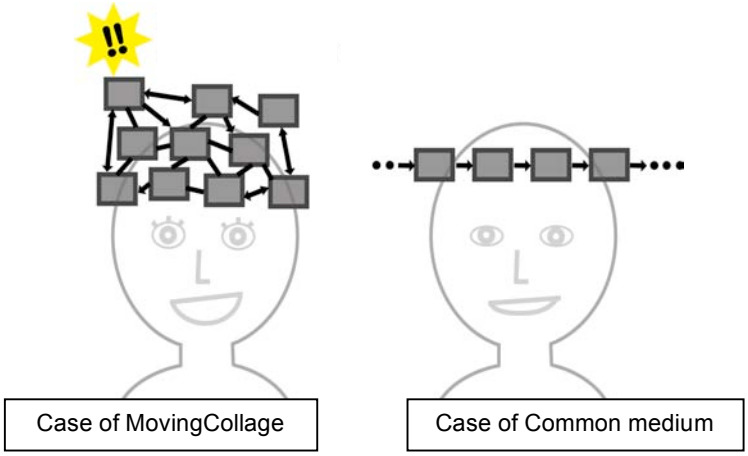

Figure.14 Comparing of MovingCollage and common medium's view flow

Figure.15 Application possibility of MovingCollage

Figure.16 Advanced design of MovingCollage
(Left: New Style Album, Right: Move Cooking Recipe)

7. References and Citations

[1] Tom Stafford, Matt Webb, (2007) *MIND HACK*, NATSUME Dai, O'Reilly Japan, Inc.

[2] *役に立たないブルーノ・ムナーリ入門,* (2008) 芸術新潮 1 月号, pp.16-84.

[3] David Hockney, (1993) *That's the way I see*, SATO yasuki, Bijutsu Shuppan Holdings CO., LTD.