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Thank you for your interest in the Taiwanese Facial Expression Image Database (TFEID). The TFEID was established by the Brain Mapping Laboratory (National Yang-Ming University) and Integrated Brain Research Unit (Taipei Veterans General Hospital). This study was supported in parts by National Science Council under grants NSC 95-2752-B-010-008–PAE and NSC 96-2628-E-010-016 –MY3.

The TFEID consists of 7200 stimuli captured from 40 models (20 males), each with eight facial expressions: neutral, anger, contempt, disgust, fear, happiness, sadness and surprise. Models were asked to gaze at two different angles (0° and 45°). Each expression includes two kinds of intensities (high and slight) and was captured by two CCD-cameras simultaneously with different viewing angles (0° and 45°).

You are cordially welcome to use the TFEID in your research studies. Please read the following Terms of Use before you download the TFEID:

1. The TFEID will be used only in scientific research and can not be provided to the media (television, magazines, Internet, etc).
2. The researchers can not publish the images of TFEID in scientific publications except the images of models M5 and F21.
3. The usage of the images is limited to the domain of user's affiliation and the redistribution of the images in any form is prohibited.
4. The citation format of the TFEID in published manuscript is:

   Li-Fen Chen and Yu-Shiuan Yen. (2007). Taiwanese Facial Expression Image Database [http://bml.ym.edu.tw/download.html]. Brain Mapping Laboratory, Institute of Brain Science, National Yang-Ming University, Taipei, Taiwan.

Your personal information will be used only for creating an account and the Brain Mapping Laboratory will keep it confidential. Any suggestions or comments are highly appreciated.

The photography of the TFEID

Models

This study recruited 40 healthy models (20 males), aged between 18 and 30 years old. Some models major in Drama or related filed, and others are familiar with face of performance skills.

Photography Procedures

The study takes eight emotional facial expressions which were based on the operative definition from Ekman's intervention (2003), including neutral, anger, contempt, disgust, fear, happiness, sadness and surprise. Each emotion consists of:

1. Two kinds of intensities: high and slight.
2. Two kinds of gazes: direct-gaze and indirect-gaze (45°).
3. Two kinds of viewing angles: front and side (45°).

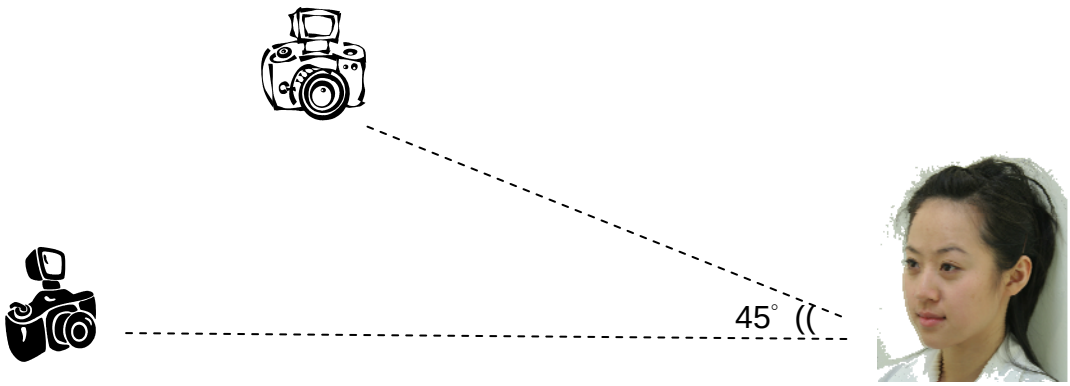

Figure 1: This graph shows how to take photography.

Facial movement of emotional expression

Happiness

1. Push up the cheeks, gathers the skin under the eye, narrow the eye aperture.
2. Pull the corners of lips up.

Sadness

1. Pull the inner corners of eyebrows up in the middle only, not the entire brow.
2. Eyes look downward.
3. Upper eyelids droop.
4. Eyebrows movement has triangulated upper eyelids.
5. Pull the corners of lips down.

Fear

1. The jaw drops open, and stretch lips horizontally back toward ears.

2. Raised upper eyelids and eyebrows.
3. Pull eyebrows together.

Disgust

1. Nose wrinkling.
2. Raised cheek and lowered brows.
3. Raised upper lip.

Surprise

1. Raised upper eyelids and eyebrows, but eyebrows are not drawn together.
2. The jaw drops down

Anger

1. Pull the eyebrows down and together.
2. Open eyes wide, so that upper eyelids push against lowered eyebrows to produce a stare.
3. Press the lips together tightly and tense the lips, don't pucker, just press.

Contempt

The lip corner is tightened and slightly raised to one side.

Processing Photography

Head Position Correction

We utilized the rotation tools to make the model's nose vertical and eyes horizontal.

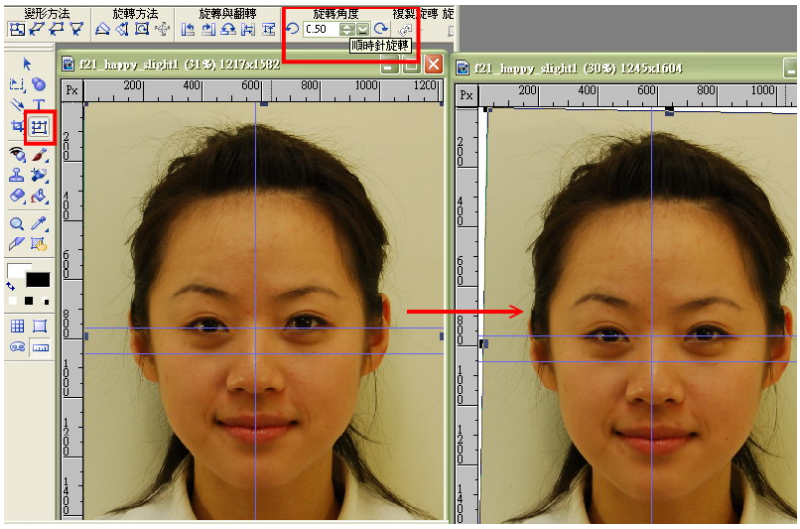

Figure 2: This graph shows how to do head position correction.

Image Denoising

Removing the noise (i.e. pocks and marks) of the image, we can obtain clean and good quality image.

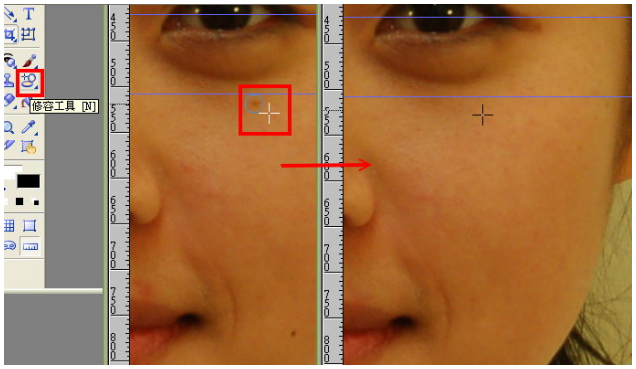

Figure 3: This graph shows how to remove noise.

Rescaling Image

The image size could be a control factor in visual stimuli. The images need to be rescaled, so that the size of all images is almost the same.

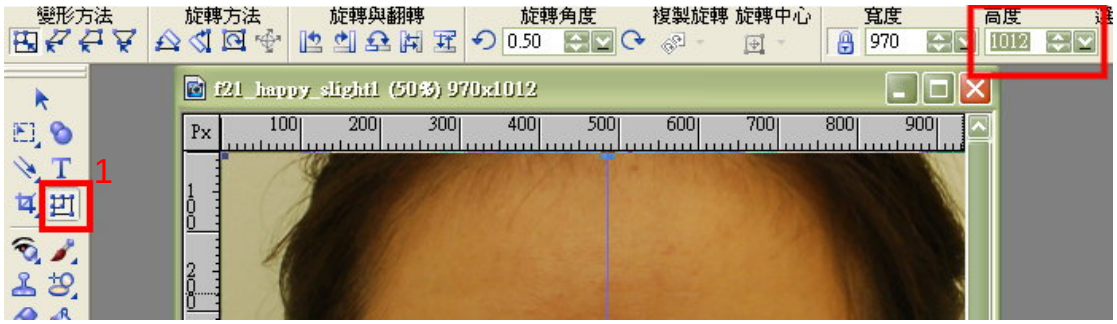

Figure 4: This graph shows how to rescale image.

The reliability study of the TFEID

Currently, only the category and intensity of the facial expression images with direct gaze, front view, and high intensity has been validated by the group rating experiment. In general, the results were similar to those proposed by Biehl et al. (1997). We strongly suggest that the researchers should refer to the rating data while selecting the images for your own study.

Subjects

111 normal healthy undergraduates were recruited from two universities, including 39 from the National Yang-Ming University and 72 from the Fu-Jen Catholic University. They were between 18 and 28 years old (mean=19.87, SD= 1.533) and include 47 males.

Materials and Methods

Images of eight facial expressions, including anger, contempt, disgust, fear, happiness, sadness, surprise and neutral, were presented randomly by Microsoft Office PowerPoint file to two groups of subjects individually. In each slide, one facial image was shown for 8 seconds, together with a list of eight corresponding emotional vocabularies and a nine-point scale (0-8) of intensity. A "warning" sound for 1 second chimed while each slide showed up. Subjects were asked to choose the vocabulary which best described the facial expression in the presented image and to rate the intensity of emotion expressed. Each of nine-point scales represented: "0" for "not at all", "1" for "slight", "4" for "moderate," and "8" for "high."

Figure 5: This displays rating materials.

Statistical Analysis

The analysis of rating data was using the software of SPSS (Statistics Package for Social Science) to compute the mean of correct rate and the mean of intensity to each image.

Results and Discussion

The results were shown in Table 1 and Table 2 below. In overall, our results were similar to those proposed by Biehl et al. (1997).

Table 1

The mean of correction rate for direct-gaze_front_high images (%)								
N =111	anger	sadness	fear	happiness	disgust	surprise	contempt	neutral
F01	18.3	75.0	13.5	99.1	56.8	98.2	80.7	90.1
F02	79.1	30.2	56.5	100.0	85.2	100.0	92.7	99.1
F03	17.4	73.8	49.5	98.2	69.4	96.3	95.5	70.3
F04	86.1	47.2	86.0	98.2	65.1	97.2	94.4	95.3
F05	67.9	76.1	51.4	98.2	86.0	99.1	97.2	99.1
F06	89.8	41.1	37.6	97.2	63.9	89.7	93.6	98.2
F08	81.1	57.5	75.5	99.1	72.0	93.6	96.4	100.0
F09	39.8	80.0	74.5	96.4	79.3	97.2	90.8	82.0
F10	78.1	72.2	63.6	95.3	56.9	98.1	95.4	97.2
F11	69.4	61.3	19.6	100.0	23.9	94.5	92.8	73.1
F12	90.8	70.6	66.1	100.0	39.8	94.4	90.8	83.3
F13	81.5	76.4	70.5	100.0	58.6	94.6	98.2	92.5
F14	82.2	43.4	62.0	97.2	75.2	100.0	87.9	84.3
F15	82.2	86.8	70.1	98.2	47.7	95.4	90.7	94.4
F16	73.1	70.1	32.7	100.0	78.7	99.1	94.3	96.4
F17	43.8	77.1	50.9	99.1	84.4	95.4	95.4	78.4
F18	91.7	84.4	73.9	99.1	72.1	98.2	97.3	94.5
F19	70.1	88.9	44.0	94.4	62.3	97.2	94.5	79.6
F20	80.2	59.3	73.6	99.1	73.6	99.1	99.1	94.4
F21	80.4	80.4	69.7	100.0	72.9	99.1	96.4	92.7
M01	51.9	70.4	62.5	96.3	21.9	96.4	91.7	89.1
M02	92.4	34.0	54.6	98.2	48.2	94.4	97.2	95.4
M03	51.5	63.6	28.4	95.4	51.4	81.3	92.6	70.9
M04	84.3	82.4	37.4	98.2	77.6	98.2	95.5	97.3
M05	94.4	94.4	81.0	96.3	68.5	98.2	99.1	87.2
M06	28.7	34.0	44.7	99.1	16.5	95.5	89.8	98.1
M07	86.2	73.8	35.6	100.0	11.0	94.5	98.2	78.9
M08	97.3	57.5	75.9	99.1	67.0	89.1	93.7	72.2
M09	94.4	34.3	23.6	99.1	5.6	99.1	97.2	99.1
M10	90.4	59.3	65.1	99.1	28.7	91.7	89.1	98.2
M11	69.5	89.1	64.2	99.1	58.6	99.1	99.1	83.2
M12	69.5	73.4	56.2	99.1	36.7	95.5	88.1	98.2
M13	95.4	71.0	76.9	100.0	32.4	96.3	95.4	90.8
M14	97.2	80.7	64.0	96.3	66.0	97.2	92.7	87.4
M15	79.1	69.2	48.1	100.0	50.0	100.0	86.2	88.3
M16	93.6	85.0	26.9	100.0	16.0	97.2	98.2	91.0
M17	88.6	83.2	65.1	96.3	30.9	95.5	86.9	70.4
M18	64.5	63.9	46.7	99.1	15.1	90.8	98.2	76.6
M19	92.6	80.9	37.0	96.3	21.1	98.2	93.7	87.4
M20	86.1	69.5	65.7	98.1	66.1	98.2	98.2	79.6

Table 2

The mean of intensity rating for direct-gaze_front_high images (0-8)								
N =111	anger	sadness	fear	happiness	disgust	surprise	contempt	neutral
F01	3.31	3.24	2.22	5.18	4.97	4.60	2.40	0.44
F02	2.38	1.65	3.91	4.83	5.21	3.99	3.39	0.23
F03	0.80	3.69	4.94	4.25	4.55	4.45	2.65	0.86
F04	4.04	3.90	4.85	4.34	5.41	4.01	3.84	0.34
F05	3.26	5.23	4.49	4.18	4.93	5.82	5.36	0.42
F06	3.83	3.23	4.37	4.38	3.75	3.42	3.29	0.36
F08	3.65	4.39	4.99	5.06	5.59	5.59	2.97	0.41
F09	3.81	5.01	6.47	5.99	5.68	6.46	3.44	0.59
F10	3.47	2.89	3.90	3.91	4.62	4.46	3.93	0.43
F11	2.55	3.78	4.00	4.88	5.34	5.83	4.35	0.70
F12	4.21	6.22	4.84	4.44	4.69	4.93	3.73	0.60
F13	4.53	3.96	4.88	5.02	5.37	5.64	4.33	0.33
F14	3.41	3.25	3.07	5.23	5.28	5.08	5.22	0.55
F15	3.49	3.77	4.82	4.94	5.37	5.07	3.14	0.46
F16	3.18	4.62	4.47	5.13	4.77	4.08	4.02	0.35
F17	2.04	3.77	5.27	5.19	3.81	4.84	4.56	0.62
F18	3.90	4.39	5.12	5.27	4.51	5.48	4.74	0.42
F19	3.79	4.53	4.22	3.71	4.94	5.10	4.05	0.75
F20	5.38	6.16	4.99	4.93	5.83	6.19	4.62	0.41
F21	3.39	4.72	4.93	5.54	4.61	5.87	4.20	0.34
M01	1.83	2.58	4.21	3.94	4.23	4.37	4.26	0.57
M02	3.29	1.88	3.89	4.52	4.76	5.40	5.30	0.48
M03	1.86	4.45	4.66	6.49	5.21	4.81	4.61	0.74
M04	3.39	3.84	2.23	4.11	6.01	5.31	3.22	0.46
M05	4.65	5.39	5.19	4.17	4.90	3.86	3.81	0.50
M06	2.36	2.95	2.83	4.56	3.44	5.12	4.03	0.36
M07	3.90	3.85	3.64	4.13	6.44	4.95	4.75	0.66
M08	5.32	4.15	5.83	5.36	5.65	5.38	5.11	1.04
M09	3.81	2.44	4.24	3.99	4.94	5.23	4.05	0.41
M10	3.22	3.37	6.44	3.96	5.14	6.52	3.15	0.31
M11	2.62	4.17	5.44	5.16	5.30	6.11	4.64	0.78
M12	2.90	4.46	5.30	5.10	6.23	5.52	3.20	0.27
M13	4.19	3.13	5.53	5.35	5.05	5.96	4.40	0.48
M14	4.20	3.72	4.23	4.39	5.88	5.87	3.87	0.60
M15	2.93	4.12	5.42	5.20	4.90	6.31	2.81	0.54
M16	3.40	4.34	4.50	4.59	5.09	5.71	4.84	0.45
M17	4.71	4.93	5.78	4.59	5.06	6.32	4.05	0.63
M18	2.53	4.36	4.24	4.45	5.58	4.45	4.24	0.65
M19	3.72	5.15	5.31	4.13	5.49	6.23	4.75	0.51
M20	4.07	4.00	4.85	4.44	4.93	4.50	4.57	0.64

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