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Preliminary Analysis of Individual Differences of the Perceived Encoding and Decoding Abilities (2)

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Abstract

Our first study attempted to construct the Perceived Encoding Ability (PEA) and Perceived Decoding Ability (PDA) scale for Japanese based on the scale developed by Zuckerman and Larrance. This second study examined internal consistent reliability, split half reliability and construct validity. The scale was administered to 392 participants. Reliability of all PEA and PDA scales appears quite adequate. Factor analysis showed that participants distinguished between these two nonverbal skills.

Key Words and Phrases : perceived encoding ability, perceived decoding ability, internal consistent reliability, split-half reliability, construct validity

Ⅰ. Introduction

Research with adults suggests that nonverbal skills play an important role in relationship success. For example, relatively unhappy and poorly adjusted couples tend to make greater errors in nonverbal communication than relatively happy, adjusted couples[1)2)]. Many studies have established the interpersonal advantages associated with the abilities to encode (express) and to decode (read) nonverbal cues. For example, encoding ability is positively associated with social adjustment in children[3)], being positively perceived[4)], having influence in social interactions[5)], and marital adjustment[2)]. Similarly, decoding ability relates to social competence in preschoolers[6)], and to marital adjustment[2)]. Despite the positive benefits of nonverbal abilities, we feel an important obstacle in investigating nonverbal communication skill has been the absence of paper-and-pencil measures of individual accuracy in encoding and decoding nonverbal cues. The question of whether individuals are accurate in assessing their nonverbal encoding and decoding abilities has not received much attention in previous research. Zuckerman and Larrance's measures of perceived encoding and decoding abilities are important in their own right, as they may provide valuable information about self-perception in the nonverbal realm[7)].

In our first study[8)], we attempted to construct a Japanese version of paper-and-pencil scales of the individual differences in perceived ability to communicate nonverbally developed by Zuckerman and Larrance[9)]. The scales were designed to measure the extent to which a person believes that he or she is able to encode (transmit) or decode (interpret) nonverbal cues of emotion. They labeled these scales as the Perceived Encoding Ability (PEA) and Perceived Decoding Ability (PDA) scales, respectively. Originally, the scales were constructed to be used in examining the feasibility of replacing performance measures of nonverbal ability with paper-and-pencil measures. Although the reliability and validity of

the original version of PEA and PDA were described in the previous study of Zuckerman and Larrance[9], no psychometric evaluation of the Japanese version has been reported. The present study examines the psychometric properties of the Japanese version of PEA and PDA.

Ⅱ. Method

1. *Participants.*

The PEA and PDA items were combined, randomized, and administered as a single ninety-five-item PEA-PDA questionnaire (Appendix 1) to 392 Japanese participants. Most of the undergraduate subjects (321 females and 71 males) were eighteen to nineteen years old. Testing was carried in groups in normal class periods. The great majority of participants participated in partial fulfillment of an introductory psychology course. For longer classes, participants were asked to complete the entire questionnaire during class time. For shorter classes, participants completed them on their own. The participants were informed of all aspects of this research and advised that they would be anonymous. The investigator obtained oral informed consent from the research participants.

2. *PEA and PDA scale.*

An original list of forty-nine PEA items and forty-six PDA items in appendix 2 and 3 was translated into Japanese by the author. These items can be classified according to channel (i.e., general, facial, vocal) and affect (i.e., general or specific). When channel was mentioned, only face and voice were used, since facial expressions and tones of voice appear to be important channels through which emotions are conveyed [10]. Most of the encoding and decoding items were the mirror image of one another. For example, an encoding item such as "People can usually tell when I am afraid from my tone of voice" has its equivalent decoding item: "I can usually tell when someone is afraid from the person's tone of voice." Appendix 2 and 3 of this paper presents the English version of PEA and PDA items, respectively.

Each item in the combined PEA-PDA questionnaire was accompanied by a seven point scale that ran from agree (7) to disagree (1). For thirty-three PEA items and thirty-one PDA items, agreement was scored as high encoding or decoding abilities; for the reminder of the items, disagreement was scored as high encoding and decoding. The PEA and PDA items were scored in the direction of high encoding and high decoding ability.

Ⅲ. Results and Discussion

The actual Japanese items are given in Appendix 1. The items belonging to PEA are numbers 19, 20, 23, 24, 25, 26, 27, 28, 32, 33, 34, 35, 36, 37, 38, 39, 40, 47, 48, 49, 50, 51, 52, 53, 54, 55, 59, 60, 61, 62, 63, 64, 76, 77, 78, 79, 80, 81, 82, 83, 84, 88, 89, 90, 91, 92, 93, 94, and 95; for PDA, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 29, 30,31, 41, 42, 43, 44, 45, 46, 56, 57, 58, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 85, 86, and 87 in Appendix 1, respectively.

Internal consistency reliability of the scale was assessed by determining the reliability coefficient, a measure of the degree to which scale items measure a homogeneous construct or characteristics. One of the most commonly used reliability coefficients is Cronbach's alpha. Cronbach's alfa was 0.93

Table 1
Varimax-Rotated Factor Matrix for the PDA and PEA

Scale	Factors 1	2	3	4	5	6
V59	0.781	0.081	0.177	0.171	0.072	-0.103
V60	0.772	0.006	0.192	0.139	0.072	-0.090
V38	0.558	0.130	0.183	0.068	0.106	0.189
V88	0.540	0.099	0.308	0.280	0.166	0.166
V77	0.504	-0.005	0.291	0.090	0.121	0.455
V32	0.476	0.163	0.145	-0.003	0.122	0.333
V76	0.437	0.121	0.260	0.177	0.280	0.148
V24	0.420	0.129	-0.053	-0.020	0.265	0.437
V90	0.412	0.002	0.213	0.154	0.312	0.247
V61	0.378	-0.165	0.160	0.526	0.099	0.233
V48	0.378	-0.100	0.410	0.116	0.095	0.385
V37	0.374	0.113	0.181	0.097	0.102	0.202
V20	0.373	0.066	0.164	0.026	0.155	0.356
V26	0.356	-0.095	0.070	-0.081	0.092	0.146
V53	0.345	-0.124	0.484	0.129	0.126	0.060
V65	0.333	0.177	0.464	0.250	0.084	-0.067
V95	0.325	-0.003	0.017	-0.082	0.207	0.288
V79	0.315	-0.097	0.329	0.137	0.008	0.137
V19	0.313	0.217	0.061	0.058	0.136	0.218
V22	0.311	0.069	0.423	0.107	0.116	-0.015
V36	0.296	-0.059	0.520	0.074	0.083	0.191
V64	0.275	0.029	0.166	0.038	0.121	0.250
V40	0.274	0.168	0.261	0.001	0.343	0.352
V89	0.271	-0.061	-0.002	0.364	0.261	0.424
V80	0.259	0.022	0.155	0.191	0.038	0.090
V23	0.253	0.209	0.126	0.046	-0.078	0.207
V34	0.248	0.039	0.142	0.121	0.220	0.119
V81	0.242	-0.045	0.161	-0.027	-0.126	0.230
V35	0.242	0.018	0.016	0.262	0.208	0.272
V46	0.240	0.247	0.461	0.177	0.097	0.047
V94	0.239	-0.024	0.015	-0.008	0.158	0.012
V86	0.237	0.381	0.335	0.321	-0.010	-0.063
V28	0.236	0.018	0.058	0.029	-0.049	0.027
V84	0.235	-0.020	-0.012	-0.008	0.667	-0.010
V78	0.215	-0.056	0.187	0.314	0.209	0.224
V27	0.210	-0.052	-0.022	0.129	0.205	0.378
V58	0.203	0.122	0.479	0.173	0.008	0.008
V87	0.198	0.280	0.514	0.282	0.046	-0.025
V33	0.195	-0.029	0.074	0.299	0.135	0.424
V52	0.191	0.091	-0.004	0.021	0.545	-0.039
V74	0.184	0.040	0.729	0.240	0.048	0.021
V62	0.166	0.157	0.099	0.134	-0.001	0.229
V12	0.166	0.411	0.174	0.264	0.049	-0.120
V44	0.164	0.123	0.514	0.153	-0.037	0.221
V4	0.163	0.122	0.305	0.109	-0.030	0.248
V71	0.162	0.169	0.183	0.162	-0.179	-0.018
V39	0.156	0.010	0.024	0.235	0.175	0.532
V49	0.150	-0.011	0.086	0.503	-0.027	0.292
V47	0.140	-0.025	0.161	0.341	0.122	0.283
V15	0.138	0.202	0.383	0.196	-0.062	0.053
V83	0.135	-0.010	0.001	0.130	0.647	0.154
V55	0.134	-0.001	0.105	0.226	0.022	-0.050
V82	0.120	-0.034	0.318	0.000	0.539	0.300
V14	0.114	0.347	0.279	0.177	-0.158	0.032
V92	0.114	0.059	-0.146	-0.152	0.097	0.215
V57	0.113	0.063	0.549	0.177	0.104	-0.030
V21	0.111	0.027	0.218	0.438	-0.060	0.060
V11	0.097	0.358	0.174	0.336	0.104	-0.080
V68	0.097	0.191	0.639	0.257	-0.011	0.062
V85	0.096	0.139	0.206	0.572	-0.036	0.211
V70	0.096	0.123	0.234	0.645	0.053	0.066
V29	0.087	0.065	-0.043	-0.056	-0.011	0.044
V63	0.084	0.013	0.057	0.212	0.167	0.398
V16	0.084	0.691	0.023	0.013	-0.008	0.176
V91	0.074	-0.061	0.166	0.127	0.046	0.354
V18	0.068	0.583	0.026	0.056	0.008	0.008
V75	0.066	0.531	0.182	0.068	0.072	-0.014
V10	0.064	0.691	0.047	0.051	0.070	-0.033
V73	0.060	0.276	0.156	0.605	0.035	0.056
V17	0.059	0.701	-0.057	-0.090	0.060	0.052
V3	0.058	0.235	0.131	0.284	0.032	0.001
V69	0.050	0.093	0.739	0.144	0.008	0.162
V8	0.038	-0.004	0.167	0.174	0.059	-0.113
V66	0.036	0.271	0.184	0.543	-0.052	0.164
V9	0.035	0.079	0.196	0.129	-0.036	-0.198
V7	0.034	0.280	0.109	0.296	0.008	0.004
V93	0.031	0.101	0.048	0.052	0.054	0.208
V6	0.029	0.124	0.446	0.072	0.062	0.068
V42	0.025	0.637	0.076	0.077	0.027	0.117
V51	0.019	-0.024	-0.032	0.100	0.540	0.171
V50	0.017	-0.048	0.259	0.039	0.545	0.222
V31	0.012	0.564	0.111	0.075	-0.136	0.075
V45	0.005	0.154	0.214	0.453	0.157	0.112
V43	-0.005	0.374	0.068	0.368	-0.088	0.217
V1	-0.008	0.245	0.336	0.195	0.069	-0.072
V54	-0.014	-0.035	0.015	0.451	0.156	0.133
V25	-0.015	0.003	-0.051	0.049	-0.073	0.369
V2	-0.015	0.363	0.120	0.138	0.098	-0.128
V5	-0.019	0.156	0.164	0.232	0.143	-0.011
V30	-0.024	0.457	0.063	0.084	-0.090	-0.020
V67	-0.028	0.379	0.466	0.144	-0.004	0.193
V13	-0.040	0.115	0.212	0.411	-0.012	0.030
V56	-0.074	0.278	0.119	0.523	0.005	0.122
V72	-0.124	0.200	0.001	0.016	-0.005	-0.043
V41	-0.126	0.379	0.133	0.396	-0.125	0.242
Explained Variance	5.789	5.423	6.538	5.566	3.344	3.979
Proportion Total	0.061	0.057	0.069	0.059	0.035	0.042

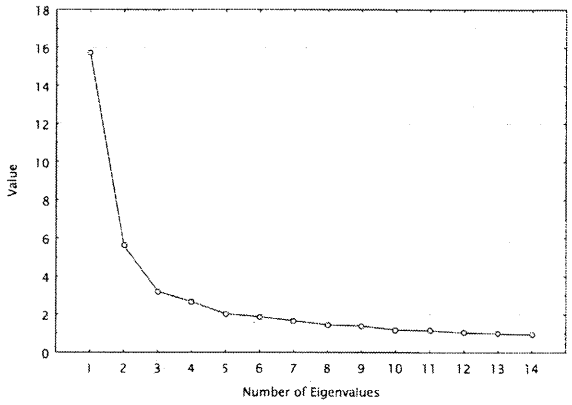

Figure 1. Screeplot of Eigenvalues

in our study. Anastasi indicated that a reliability coefficient which falls in the 0.80s or 0.90s is reliable[11]. The value, 0.93 is large, indicating that our scale is quite reliable. Additionally, we computed split-half coefficients. This is based on splitting the scale into two parts and looking at the correlation between the two parts. The correlations between the two halves in PEA scale and PDA scale are, 0.88 and 0.85, respectively. Such a high level of consistency provides support for the suggestion that the full set of ninety-five items tapping both encoding and decoding abilities represents a general communication factor.

The next analysis of the item scores was designed to examine whether encoding and decoding abilities were perceived as separate skills or as parts of the same general communication factor. Accordingly, a maximum likelihood factor extraction with a varimax rotation was performed on the entire ninety-five-item questionnaire (Table 1). Zuckerman and Larrance reported the six-factor solution, and the scree plot in this study

Table 2
Loading of PEA and PDA Items on the First Six Rotated Factors of the Ninety-Five Item Factor Analysis.

Type of Items	Factor 1	2	3	4	5	6
PEA Items						
Number of items loading more than ±0.25	23	0	9	8	11	18
Proportion of items loading on each factor	0.33	0	0.13	0.12	0.16	0.26
PDA Items						
Number of items loading more than ±0.25	3	21	18	18	0	0
Proportion of items loading on each factor	0.05	0.30	0.26	0.26	0	0

Table 3
Item-Total Summary Statistics of PDA

Scale	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
V1	216.628	627.170	25.043	0.419	0.909
V2	217.468	626.292	25.026	0.358	0.909
V3	217.649	618.973	24.879	0.365	0.909
V4	217.080	623.057	24.961	0.350	0.909
V5	217.657	625.529	25.011	0.293	0.910
V6	216.314	626.082	25.022	0.384	0.909
V7	217.976	617.832	24.856	0.375	0.909
V8	216.806	633.795	25.175	0.184	0.911
V9	217.293	630.329	25.106	0.229	0.911
V10	218.114	614.415	24.787	0.458	0.908
V11	217.529	612.893	24.757	0.495	0.908
V12	217.630	614.068	24.780	0.519	0.907
V13	217.173	618.430	24.868	0.395	0.909
V14	217.279	619.951	24.899	0.449	0.908
V15	216.803	620.898	24.918	0.454	0.908
V16	217.918	619.108	24.882	0.461	0.908
V17	218.293	622.138	24.943	0.353	0.909
V18	218.340	618.150	24.863	0.393	0.909
V21	217.311	621.635	24.933	0.368	0.909
V22	217.138	623.587	24.972	0.357	0.909
V29	218.473	643.074	25.359	0.021	0.914
V30	218.221	620.199	24.904	0.347	0.910
V31	218.388	617.200	24.844	0.438	0.908
V41	217.460	615.248	24.804	0.482	0.908
V42	218.003	615.854	24.816	0.458	0.908
V43	217.612	614.711	24.793	0.461	0.908
V44	217.000	621.043	24.921	0.446	0.908
V45	217.532	619.339	24.887	0.431	0.908
V46	217.040	620.608	24.912	0.518	0.908
V56	217.386	618.556	24.871	0.463	0.908
V57	216.825	622.570	24.951	0.421	0.909
V58	217.160	621.241	24.925	0.450	0.908
V65	217.197	618.866	24.877	0.519	0.908
V66	217.404	614.799	24.795	0.538	0.907
V67	217.146	619.604	24.892	0.531	0.908
V68	217.019	619.119	24.882	0.571	0.907
V69	216.606	621.659	24.933	0.502	0.908
V70	217.250	613.980	24.779	0.511	0.908
V71	217.138	625.119	25.002	0.309	0.910
V72	218.476	636.696	25.233	0.103	0.913
V73	217.564	615.671	24.813	0.548	0.907
V74	216.846	620.838	24.917	0.540	0.908
V75	217.979	617.537	24.850	0.453	0.908
V85	217.250	615.384	24.807	0.486	0.908
V86	217.404	616.911	24.838	0.581	0.907
V87	217.192	619.352	24.887	0.581	0.907

Table 4
Item-Total Summary Statistics of PEA

Scale	Mean if deleted	Var. if deleted	StDv. if deleted	Itm-Totl Correl.	Alpha if deleted
V19	223.947	887.971	29.799	0.377	0.903
V20	223.640	874.056	29.564	0.495	0.902
V23	223.603	890.160	29.836	0.287	0.904
V24	224.034	869.980	29.495	0.528	0.901
V25	224.466	893.217	29.887	0.161	0.907
V26	224.508	884.149	29.735	0.334	0.904
V27	224.550	880.988	29.681	0.405	0.903
V28	224.836	895.433	29.924	0.181	0.906
V32	224.127	878.381	29.637	0.545	0.902
V33	224.175	877.927	29.630	0.463	0.902
V34	224.119	890.147	29.835	0.364	0.903
V35	224.405	883.638	29.726	0.429	0.903
V36	223.267	879.254	29.652	0.474	0.902
V37	224.259	893.261	29.887	0.423	0.903
V38	224.254	884.269	29.737	0.518	0.902
V39	224.288	877.427	29.621	0.465	0.902
V40	223.944	875.100	29.582	0.535	0.902
V47	224.373	887.673	29.794	0.395	0.903
V48	223.175	873.763	29.559	0.583	0.901
V49	223.958	882.146	29.701	0.382	0.903
V50	223.458	880.894	29.680	0.404	0.903
V51	224.468	887.059	29.784	0.304	0.904
V52	224.691	892.679	29.878	0.296	0.904
V53	223.423	883.768	29.728	0.452	0.903
V54	222.741	884.293	29.737	0.261	0.905
V55	223.058	894.208	29.903	0.191	0.906
V59	224.106	885.195	29.752	0.484	0.902
V60	224.114	883.958	29.731	0.487	0.902
V61	223.894	872.148	29.532	0.555	0.901
V62	223.659	890.436	29.840	0.299	0.904
V63	224.148	870.692	29.508	0.424	0.903
V64	223.860	876.131	29.600	0.424	0.903
V76	223.849	882.043	29.699	0.529	0.902
V77	223.537	868.206	29.465	0.646	0.901
V78	224.389	889.047	29.817	0.420	0.903
V79	223.079	881.031	29.682	0.416	0.903
V80	223.701	882.040	29.699	0.330	0.904
V81	224.175	883.033	29.716	0.279	0.905
V82	223.640	871.950	29.529	0.519	0.902
V83	224.556	877.718	29.626	0.434	0.903
V84	224.614	888.248	29.803	0.378	0.903
V88	223.804	876.496	29.606	0.606	0.901
V89	224.000	872.958	29.546	0.555	0.901
V90	224.069	880.027	29.665	0.557	0.902
V91	223.929	875.289	29.585	0.355	0.904
V92	225.071	900.532	30.009	0.132	0.907
V93	224.749	896.474	29.941	0.174	0.906
V94	224.529	892.937	29.882	0.223	0.905
V95	223.905	875.880	29.595	0.432	0.903

suggested a six-factor solution as optimal (Figure 1). We employed the six-factor solution to compare our results with Zuckerman and Larrance and the results were similar. The varimax rotation clearly indicated that subjects did distinguish between encoding and decoding (Table 2). Table 2 presents (1) the number of PEA and PDA items loading more than ±0.25 on each of the first six rotated factors; (2) the proportion of all these items (thirty-six for PEA; forty-six for PDA) found on each of the six factors. Table 2 seems to indicate that three of these factors (factors, 1, 5, and 6) can be considered as encoding factors, whereas the remaining three (factors, 2, 3, and 4) can be considered as decoding factors. On the basis of these results, it was decided to perform all the remaining analyses separately for the PEA and PDA sets of items. Values of Cronbach's alfa, were 0.91 for both the PDA and PEA items, indicating a high level of consistency within each set. Further evidence of this high internal consistency came from two item analyses. For each item, the first column of Table 3 and 4 shows what the average score for the scale would be if the item were excluded from the scale. The next column is the scale variance if the item were eliminated. The column labeled Item-Total Correlation is the Pearson correlation coefficient between the score on the individual item and the sum of the scores on the remaining items. It can be seen that for the PDA items, correlations ranged from 0.02 to 0.58; for the PEA items, correlations ranged from 0.13 to 0.65. For example, in Table 3, the correlation between the score on item 8 and the sum of the scores of items 1 through 87 is only 0.184. This indicates that there is not much of a relationship between the eighth item and the other items. On the other hand, item 87 have a high correlation, 0.581, with the other items.

When we are examining individual items, as in Table 3 and 4, we want to know how each of the items affects the reliability of the scale. This can be accomplished by calculating Cronbach's alfa when each of the items is removed from the scale. These alfas are shown in the last column of Table 3 and 4. We can not see that eliminating a certain item from the PDA or PEA scales causes alfa to increase or decrease. We can see no items which stick out, in that they are not consistent with the rest of the scale. Elimination of any of the other items from the scale causes little change in alfa. In general the above results suggest that there is no need to reject any of the items from either the PEA or the PDA scales. However, because of the high internal consistency of both scales, it may be better to create short PEA and PDA forms that would be easier to administer and score than the full set of items. The course of future research is to construct two equivalent short forms of PDA and two equivalent short forms of PEA. More research is also needed to test the relationship between measures of actual and of perceived nonverbal skills.

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Appendix 1. Japanese Version of PEA and PDA Items

1．私はたいていその人の声の調子で、怒っているのがわかる。
2．私はたいていその人の声の調子で、敵意を感じているのがわかる。
3．私はたいていその人の声の調子で、私を嫌っているのがわからない。
4．私はたいていその人の表情で、幸せであるのがわかる。
5．私はたいていその人の表情で、自信を持っているのがわからない。
6．私はたいていその人の声の調子で、喜んでいるのがわかる。
7．人が私が近くに居て欲しくないと思っていることに気づくのが遅いことがよくある。
8．人の言う事より身振りや声の調子に注目するのが大事な時がある。
9．私はたいてい人が私を好いているかどうかを決めるのにその人の言葉でなく非言語的な手掛かりを見る。
10. 私はたいていその人の表情で、思っている事がわかる。
11. 私はたいていその人の表情で、私を嫌っているのがわからない。
12. 私はたいていその人の表情で、敵意を感じているのがわかる。
13. 私はたいていその人の声の調子で、悲しんでいるのがわからない。
14. 私はたいていその人の声の調子で、気がとがめているのがわかる。
15. 私はたいていその人の表情で、心配しているのがわかる。
16. 私は人がどんな気持ちかを言わない時でも、その人の気持ちがわかる。
17. 私はその人が話す前に、何を言おうとしているかよくわかる。
18. 私はたいていその人の表情で、うそがわかる。
19. 人はたいてい私の表情で、賛成しているのがわかる。
20. 人はたいてい私の表情で、幸せなのがわかる。
21. 私はたいていその人の声の調子で、感動しているのがわからない。
22. 私はたいていその人の声の調子で、私を喜ばそうとしているのがわかる。
23. 私は自分の声の調子で、どういう気持ちかがわかることがある。
24. 人はたいてい私の表情で、どういう気持ちかがわかる。
25. 人から私が何を考えているかわからないようなポーカーフェイスをすることがあると言われたことがある。
26. 人はたいてい私の声の調子で、うそがわかる。
27. 人はたいてい私の声の調子で、気をもんでいるのがわからない。
28. 私が気をもんでいる時、声の調子に出さないように努めても声がふるえてしまう。
29. 私は状況判断がにぶいとよく言われる。
30. 私はささいな手掛かりを見つけるのが他の人より上手だと思う。
31. 私は人のことがよくわかると思っている。
32. 人はたいてい私の表情で、心配しているのがわかる。
33. 人はたいてい私の表情で、悲しんでいるのがわからない。
34. 人はたいてい私の表情で、気がとがめているのがわかる。
35. 人はたいてい私の表情で、気をもんでいるのがわからない。
36. 人はたいてい私の表情で、びっくりしているのがわかる。
37. 人は私が言わなくても、優しい気持ちがわかる。
38. 人はたいてい私の表情で、誰かを喜ばせようとしているのがわかる。
39. 人はたいてい私の声の調子で、どういう気持ちかがわからない。
40. 人はたいてい私の物の言い方を聞いて、どういう気持ちかがわかる。
41. 私はたいていその人の表情で、どういう気持ちかがわからない。
42. 私はたいていその人の顔を見れば、何を思っているのかわかる。
43. 私はたいてい人の気持ちがわからない。
44. 私はたいていその人の声の調子で、幸せであるのがわかる。
45. 私はたいていその人の声の調子で、自信を持っているのがわからない。
46. 私はたいていその人の表情で、賛成しているのがわかる。
47. 人はたいてい私の表情で、自信をもっているのがわからない。

48. 人はたいてい私の声の調子で、喜んでいるのがわかる。
49. 人はたいてい私の声の調子で、感動しているのがわからない。
50. 人はたいてい私の声の調子で、怒っているのがわかる。
51. 人はたいてい私の声の調子で、誰かを嫌っているのがわからない。
52. 人はたいてい私の声の調子で、敵意を感じているのがわかる。
53. 人はたいてい私の声の調子で、びっくりしているのがわかる。
54. 私はどんなに悲しい映画を見ても泣いたことがない。
55. 私は悲しい映画を見るとすぐに泣く。
56. 私はたいていその人の表情で、気をもんでいるのがわからない。
57. 私はたいていその人の表情で、びっくりしているのがわかる。
58. 私がたいていその人が言わなくても、優しい気持ちがわかる。
59. 人はたいてい私の声の調子で、誰かを喜ばせようとしているのがわかる。
60. 人はたいてい私の表情で、誰かを喜ばせようとしているのがわかる。
61. 人はたいてい私の表情で、感動しているのがわからない。
62. 私は自分の表情で、どういう気持ちかがわかることがある。
63. 私はたいてい人に自分の気持ちを表わさない。
64. 私はたいてい人に自分の気持ちを伝え共有する。
65. 私はたいていその人の表情が、私を喜ばせようとしているのがわかる。
66. 私はたいていその人の声の調子で、どんな気持ちかがわからない。
67. 私はたいていその人の物の言い方を聞いて、どんな気持ちかがわかる。
68. 私はたいていその人の声の調子で、心配しているのがわかる。
69. 私はたいていその人の表情で、喜んでいるのがわかる。
70. 私はたいていその人の表情で、感動しているのがわからない。
71. 私はたいていその人がどんな気持ちかを必死でわかろうとする。
72. 私は自分が見逃すような手掛かりを人が見つけるのによる驚く。
73. 私はたいていその人の声の調子で、気をもんでいるのがわからない。
74. 私はたいていその人の声の調子で、びっくりしているのがわかる。
75. 私はたいていその人の表情で、うそがわかる。
76. 人はたいてい私の声の調子で、賛成しているのがわかる。
77. 人はたいてい私の声の調子で、幸せであるのがわかる。
78. 人はたいてい私の声の調子で、自信を持っているのがわからない。
79. 私は面白い冗談やおかしい事で、ほとんどいつも吹き出して笑ってしまう。
80. 私はおかしい本をよむと大声で笑い出してしまう。
81. 私はまともな顔でうそはつけない。
82. 人はたいてい私の表情で、怒っているのがわかる。
83. 人はたいてい私の表情で、誰かを嫌っているのがわからない。
84. 人はたいてい私の表情で、敵意を感じているのがわかる。
85. 私はたいていその人の表情で、悲しんでいるのがわからない。
86. 私はたいていその人の表情で、気がとがめているのがわかる。
87. 私はたいていその人の声の調子で、賛成しているのがわかる。
88. 人はたいてい私の声の調子で、心配しているのがわかる。
89. 人はたいてい私の声の調子で、悲しんでいるのがわからない。
90. 人はたいてい私の声の調子で、気がとがめているのがわかる。
91. 私がどんな気持ちかはほとんど誰にもわからないと言われたことがある。
92. 私は自分の気持ちを必死で、隠そうとすることなどない。
93. 人はあらゆるささいな事についての気持ちを表わすべきだとは思わない。
94. 自分で気づく前に人が自分の気持ちをわかることがある。
95. 自分の気持ちを表に出さないようにしても、人から見るとわかることがよくある。

Appendix 2. English Version of PEA Items

1. People can usually tell when I am angry from my tone of voice
2. When I dislike someone, people usually cannot tell from my tone of voice.
3. People can usually tell when I feel hostile from my tone of voice.
4. People can usually tell when I am angry from my facial expressions.
5. When I dislike someone, people usually cannot tell from my facial expressions.
6. People can usually tell when I feel hostile from my facial expressions.
7. People can usually tell when I am afraid from my tone of voice.
8. When I feel sad, people usually cannot know it from my tone of voice.
9. People can usually tell when I feel guilty from my tone of voice.
10. People can usually tell when I am afraid from my facial expression.
11. When I feel sad, people usually cannot tell from my facial expression.
12. People can usually tell when I feel guilty from my facial expression.
13. People can usually tell when I approve of something from my tone of voice.
14. People can usually tell when I am happy from my tone of voice.
15. When I feel confident, people usually cannot tell from my tone of voice.
16. People can usually tell when I approve of something from my facial expression.
17. People can usually tell when I am happy from my facial expression.
18. When I feel confident, people usually cannot tell from my facial expression.
19. When I am grateful, people can usually tell from my tone of voice.
20. People usually cannot tell when I am impressed from my tone of voice.
21. When I want to please someone, people can usually tell from my tone of voice.
22. When I am grateful, people can usually tell from my facial expression.
23. People usually cannot tell when I am impressed from my facial expression.
24. When I want to please someone, people can usually tell from my facial expression.
25. People usually cannot tell how 1 feel from the tone of my voice.
26. People can usually tell how I feel by listening to the way in which I say things.
27. Sometimes I know how I feel from knowing how my voice sounds.
28. People can usually tell how I feel from the expression on my face.
29. People have told me that I have a poker face which they can hardly ever read.
30. Sometimes I know how 1 feel from knowing what expression there is on my face.
31. I usually do not express my feelings to other people.
32. I usually share my feelings with other people.
33. I have been told that almost no one ever knows how I feel about things.
34. I never try very hard to conceal my feelings.
35. I don't think people should show how they feel about every little thing.
36. Sometimes people tell me how I feel even before I know it myself.
37. Often when I try not to let on how I feel, people seem to catch on anyway.
38. When I tell a lie, people usually know it from my tone of voice.
39. When I am nervous, people usually cannot tell from my tone of voice.
40. When I'm nervous my voice shakes, even if I try to control it.
41. When I am surprised, people usually can tell from my tone of voice.
42. I never cry in movies no matter how sad they are.
43. I cry easily in sad movies.
44. I almost always burst out laughing when I hear a good joke or see a funny incident.
45. When I read a book I'm very likely to laugh out loud if it's funny.
46. I can hardly ever tell a lie with a straight face.
47. When I am nervous, people usually cannot tell from my facial expression.
48. When I am surprised, people can usually tell from my facial expression.
49. People can tell when I feel affectionate, even though I don't say a word about it.

Appendix 3. English Version of PDA Items

1. I can usually tell when someone is angry from his or her tone of voice.
2. When someone dislikes me, I usually cannot tell from his or her tone of voice.
3. I can usually tell when someone feels hostile from the person's tone of voice.
4. I can usually tell when someone is angry from his or her facial expression.
5. When someone dislikes me, usually cannot tell from his or her facial expression.
6. I can usually tell when someone feels hostile from the person's facial expression.
7. I can usually tell when someone is afraid from the person's tone of voice.
8. When someone feels sad, I usually cannot tell from his or her tone of voice.
9. I can usually tell when someone feels guilty from the person's tone of voice.
10. I can usually tell when someone is afraid from the person's facial expression.
11. When someone feels sad, I usually cannot tell from his or her facial expression.
12. I can usually tell when someone feels guilty from the person's facial expression.
13. I can usually tell when a person approves of something from his or her tone of voice.
14. I can usually tell when someone is happy from the person's tone of voice.
15. When someone feels confident, I usually cannot tell from his or her tone of voices
16. I usually tell when a person approves of something from his or her facial expression.
17. I can usually tell when someone is happy from the person's facial expression.
18. When someone feels confident, I usually cannot tell from his or her facial expression.
19. When someone feels grateful, I can usually tell from his or her tone of voice.

20. I usually cannot tell when someone is impressed from the person's tone of voice.
21. When someone tries to please me, I can usually tell from his or her tone of voice.
22. When someone feels grateful, I can usually tell from his or her facial expression.
23. I usually cannot tell when someone is impressed from the person's facial expression.
24. When someone tries to please me, I can usually tell from his or her facial expression.
25. I usually cannot tell how other people feel from their tone of voice.
26. I can usually tell how a person is feeling by listening to the way in which he or she says things.
27. I usually cannot tell how people feel from their facial expressions.
28. I can usually read a person's face like an open book.
29. I am usually unaware of other people's feelings.
30. I usually try very hard to understand how others feel.
31. I am often surprised that other people pick up on cues that I seemed to miss.
32. I am often slow to realize if people don't really want me around.
33. Sometimes one really has to ignore what people are saying and pay attention to their body language and tone of voice.
34. I usually decide whether I like someone from their nonverbal cues, not from what they say to me.
35. People have often told me that I'm insensitive in social situations.
36. I think I'm better than most people I know at picking up on subtle cues.
37. I think I have a lot of insight into people.
38. Often when people don't tell me how they feel, I catch on anyway.
39. I can often tell what a person is going to say before he or she says it.
40. When someone is lying, I can usually tell from his or her facial expression.
41. I usually cannot tell when a person is nervous from the person's tone of voice.
42. I can usually tell when someone is surprised from his or her tone of voice.
43. I can usually tell when someone is lying from his or her facial expression.
44. I usually cannot tell when a person is nervous from the person's facial expression.
45. I can usually tell when someone is surprised from his or her facial expression.
46. I can usually tell when someone feels affectionate even though the person does not say a word about it.