



Components of Emotional Meaning: A sourcebook

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CHAPTER

6 Cross-cultural data collection with the GRID instrument,

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Abstract

The chapter provides a detailed description of the extensive cross-cultural data collection carried out with the GRID instrument, including the steps necessary to use the instrument in different languages and countries around the world. It provides details on the 34 samples collected and the reliability analyses conducted for the cross-cultural database.

Keywords: [Data collection](#), [GRID samples](#), [reliability analyses](#)

Subject: [Developmental Psychology](#), [Social Psychology](#)

Collection: [Oxford Scholarship Online](#)

The GRID project described in this volume was conceived as a large international collaboration. Previous chapters have detailed how the GRID instrument was carefully developed as an instrument for the assessment of the meaning of emotion terms. The current chapter elaborates on the steps necessary to use the instrument in different languages and countries around the world and describes the process of data collection.

6.1 Translation of the instrument

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The GRID instrument was first developed in English and administered in the UK. Collaborators from different countries were then contacted to represent a variety of cultures and languages in the study. Each collaborator was responsible for the translation of the instrument into his/her mother  tongue. They were instructed to follow a translation–backtranslation process (e.g., van de Vijver & Leung, 1997), whereby the instrument was first translated into the target language by a translator and then back-translated into the original language by a second one. Both translators were required to be bilingual or have near-native competence in the two languages involved. Discrepancies between the versions were solved through discussion using a committee approach. The GRID instrument exists at the moment in the following languages:

- *Indo-European family*
 - *Romance group*: French, Italian, Portuguese, Romansh, Spanish
 - *Germanic group*: Afrikaans, Dutch, English, German
 - *Slavic group*: Bulgarian, Czech, Polish, Russian, Slovak, Ukrainian
 - *Greek group*: Greek
 - *Indo-Iranian*: Hindi
- *Afro-Asiatic family*
 - *Semitic group*: Arabic, Hebrew
- *Altaic family*: Turkish
- *Uralic family*
 - *Finno-Ugric group*: Estonian, Finnish, Hungarian
- *Japonic family*: Japanese
- *Sino-tibetan family*: Chinese, Burmese
- *Niger-Congo family*: Sepedi
- *Unclassified*: Basque

A translation of the GRID words into the currently available languages can be found online at <http://www.affective-sciences.org/GRID> (cf. Appendix 1 to this volume for further details on the availability of the different GRID materials).

6.2 Questionnaire administration

The GRID questionnaire was administered in a controlled web study (Reips, 2000, 2002). All language versions were hosted at the site of the Swiss Center for Affective Sciences (<http://grid.unige.ch>). When necessary, paper versions of the questionnaire were also provided, and the data were then manually introduced into the database by the collaborators. Because of the practical inconvenience of this second approach, it was only implemented in cases when the technological resources of the location precluded electronic administration.

Each data sample was identified by a different study code. This was provided by the collaborator to the prospective participants, who registered in the study using an e-mail account to receive a personal password. Study code and password granted them independent access to the secure interface of the study, in which they could fill in the questionnaire at their own pace. Participants were given the chance to log out of the study and log back in if necessary, but they were always encouraged to fill in the questionnaire in one session, which typically lasted one hour.

To ensure that it would take no more than one hour to fill in the questionnaire, each participant was assigned four emotion terms only, randomly selected from 4 groups: *contempt, disgust, anger, irritation, hate, or jealousy* (group 1); *fear, anxiety, stress, despair, surprise, or interest* (group 2); *joy, pleasure, pride, happiness, contentment, or love* (group 3); and *disappointment, compassion, guilt, shame, sadness, or being hurt* (group 4).

p. 100 They were then asked to rate the likelihood, using a 9-point scale (ranging from “extremely unlikely (1)” to “extremely likely (9)”), that each of the 142 emotion features could be inferred when a person from their cultural group used the emotion terms to describe his or her emotional experience. Each of the 142 emotion features was presented on a separate screen, and participants rated the four emotion terms at the same time. Participants validated their answers by clicking a “Continue” button, and could not navigate at will between the screens of the questionnaire.

In addition to the 142 feature ratings, participants were asked to evaluate the cultural prevalence and the social acceptability of each emotion. Moreover, they were required to provide some background information with regards to their sex, age, mother tongue, the country where they had spent most of their life, where they lived at the time, their level of education, their academic field (if they were students), and their country of origin (if they, their parents, or their grandparents had migrated to the country where they resided at the time). Participants were also asked to list the five languages of which they had at least some passive knowledge, and to rate the frequency (“on a daily basis,” “at least once a week,” “at least once a month,” “several times a year,” “(almost) never”) with which they would speak, read, and write in those languages³.

The collaborator responsible for data collection was also the administrator of the study. Prior to launching the study, collaborators were requested to test-run the questionnaire interface in their language. During the study, a specific interface and independent password allowed them to monitor the development of the data collection at all times, and to download the results at the end.

A copy of the full text of the GRID questionnaire (in English) can be found in an appendix to this volume (see Appendix 2).

6.3 Samples and participants

In total, 40 samples have been collected so far with the GRID instrument. Of these 40 samples, only 34 were selected for the cross-cultural GRID database reported in this volume, and are further described below. Three samples (Hungarian, Bulgarian, and Portuguese) were not included because their data collection was not complete at the time of the final analyses for the book. Moreover, three samples that were complete were not included because of their very poor interrater reliability and/or uninterpretable structural deviations in a preliminary analysis of the data; these were the Gabon, the Sepedi (South-Africa), and the Hindi (India) samples. The average interrater reliability in the French Gabon and the Sepedi South-African samples was lower than 0.70. Additionally, their internal structures clearly deviated from the other samples, most likely because of the low reliabilities. The Hindi Indian sample exhibited reasonable interrater reliabilities (Cronbach’s alpha on average 0.87 per emotion term), but demonstrated a clearly deviant internal structure in the preliminary analysis. As it consisted of a convenience sample of mainly postal workers, and it was unclear to what extent the results of this sample could be generalized to Hindi speakers in general, this sample was also removed from the database.

p. 101 The final cross-cultural GRID database comprises 34 datasets from 27 countries covering a total of 23 different languages (see Table 6.1). In some cases several languages were collected in one country (e.g., Basque and Spanish in Spain), several countries were sampled for a single language (e.g., English in the USA, UK, and Singapore), or several regions were sampled within the same

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country (e.g., Italian in the North and South of Italy). The entire database included 4948 participants (1434 males and 3514 females), with a mean age of 23.29 (mean SD 5.31).

Table 6.1 GRID dataset description

Language	Country	Region	N	F	M	Age range	Mean age	SD age	Format	Compensation
Afrikaans	South Africa	Potchefstroom	184	130	54	19–41	21.11	2.11	online	course credit
Arabic	Tunisia	Tunis	120	62	58	20–61	27.79	9.28	paper	none
Burmese	Burma	various	66	27	39	16–54	26.32	8.20	online	remuneration
Chinese	China	Beijing	247	201	46	18–28	19.70	1.25	online	course credit
Chinese	China	Hong Kong	151	96	55	17–34	20.18	1.87	online	course credit
Chinese	Taiwan	Chia-Yi	211	159	52	17–30	20.16	1.59	online	course credit/remuneration
Czech	Czech Republic	Zlín	120	43	77	17–55	19.28	3.91	online	none
Dutch	Belgium	Gent	118	61	57	18–27	20.95	1.50	online	course credit
Dutch	Netherlands	Tilburg	178	142	36	17–38	19.76	2.78	online	course credit
English	Singapore	Singapore	103	85	18	18–26	20.03	1.58	online	course credit
English	UK	Belfast & York	201	124	77	18–49	21.51	4.43	online	remuneration
English	USA	Michigan	182	129	53	16–22	18.51	0.77	online	course credit
Estonian	Estonia	Tartu	192	160	32	18–52	23.15	5.80	online	remuneration
Euskera	Spain	Basque Country	130	91	39	18–54	23.27	5.58	online	remuneration
Finnish	Finland	various	120	101	19	19–68	32.75	11.61	online	raffle

French	Canada	Montreal	96	71	25	17–80	25.96	11.59	online	course credit
French	Switzerland	Geneva	140	101	39	18–48	23.79	5.86	online	course credit
German	Germany	Berlin	120	92	28	18–57	24.47	6.15	online	course credit
Greek	Greece	various	199	159	40	18–50	26.04	5.65	online	none
Hebrew	Israel	Haifa	81	42	39	24–59	38.99	8.63	online	none
Italian	Italy	Bari	191	166	25	18–50	20.08	3.71	online	course credit
Italian	Italy	Bologna	122	95	27	19–43	21.70	4.16	online	course credit
Italian	Italy	Turin	168	150	18	18–50	21.41	5.63	online	course credit
Japanese	Japan	Sapporo	129	56	73	18–34	19.40	1.69	online	remuneration
Polish	Poland	Lodz	124	95	29	15–55	23.17	6.32	online	none
Romansch	Switzerland	various	175	110	65	16–65	23.18	11.08	online	remuneration
Russian	Ukraine	Kiev	135	90	45	16–57	24.97	9.11	online/paper	none
Slovak	Slovakia	Trnava	128	107	21	18–28	22.20	1.59	online	none
Spanish	Chile	Concepción	88	65	23	18–38	20.17	2.61	online	course credit
Spanish	Peru	Lima	220	138	82	16–36	19.84	2.96	paper	course credit
Spanish	Spain	Basque Country	159	99	60	18–55	22.99	6.00	online	remuneration
Spanish	Spain	various (South)	98	67	31	16–64	33.45	13.72	online	none

Turkish	Turkey	Istanbul	135	117	18	19–34	21.49	2.81	online	course credit
Ukrainian	Ukraine	Kiev	116	82	34	17–59	24.23	9.27	online	none

The pool of participants varied across studies. Most of our samples were collected among university students who took part in the collaborators' courses, but in some cases participants were also recruited through mailing lists or fliers. Most participants received course credit or remuneration in the form of an individual monetary compensation (or a gift) or the right to participate in a lottery. Collaborators were instructed to recruit 120 participants for their studies, gender balanced to the extent possible. In most cases the participants filled in the questionnaire autonomously, at school or at home. In some cases, though, the collaborator arranged for a computer room and supervised the data collection. After the study, the collaborators could download the collected data from the administrator's interface.

6.4 Interrater reliabilities

Interrater reliabilities were computed for each emotion term in each sample. The interrater reliability was computed as a Cronbach's alpha, with the participants rating the same emotion term being treated as variables and the 142 features being treated as observations (see Table SM 1 and Table SM 2).⁴ For each emotion term within each sample, a participant was removed from the computation of the average feature scores if the correlation between the participant and the average of the other participants rating the same term was smaller than 0.20. Thus, only those participants that converged at least to some extent with the other participants were used to compute the average feature scores per term (see Table SM 3 and 4 for the interrater reliabilities with only the converging participants).

In Table 6.2, the average interrater reliabilities across emotion terms per sample are reported, based on all the converging participants. Each emotion term was on average rated by 24.72 participants leading to an average interrater reliability of 0.91. On average about two participants (or about 8%) did not converge with respect to the meaning of the emotion term. When the non-converging participants were removed, the reliability reached 0.92.

Table 6.2 Average interrater reliability (Cronbach's alpha) and average number of participants across emotion words per sample with all (A) and with only converging (C) participants

Language	Country (region)	<i>Alpha</i> _A	<i>N</i> _A	<i>Alpha</i> _C	<i>N</i> _C
Afrikaans	South Africa	0.93	30.42	0.93	27.67
Arabic	Tunisia	0.84	19.42	0.86	16.92
Burmese	Burma	0.76	10.83	0.79	9.63
Chinese	China (Hong Kong)	0.84	24.42	0.87	20.17
Chinese	China	0.96	40.79	0.96	37.46
Chinese	Taiwan	0.96	34.83	0.96	33.00
Czech	Czech Republic	0.78	19.42	0.86	12.83
Dutch	Belgium	0.96	33.04	0.96	31.46
Dutch	Netherlands	0.96	29.50	0.96	29.25
English	Singapore	0.90	16.83	0.91	15.96
English	UK	0.94	32.58	0.95	30.04
English	USA	0.93	29.75	0.94	26.58
Estonian	Estonia	0.96	31.88	0.96	31.46
Euskera	Spain (Basque Country)	0.91	21.58	0.93	19.83
Finnish	Finland	0.95	20.08	0.95	19.96
French	Canada	0.90	16.00	0.91	14.92
French	Switzerland	0.94	23.17	0.94	22.58
German	Germany	0.93	20.00	0.94	19.58
Greek	Greece	0.95	33.04	0.96	34.71
Hebrew	Israel	0.89	13.42	0.89	12.88
Italian	Italy (Bari)	0.95	31.46	0.95	30.25
Italian	Italy (Bologna)	0.95	31.46	0.95	30.25
Italian	Italy (Turin)	0.94	27.96	0.95	27.29
Japanese	Japan	0.93	21.17	0.93	20.58
Polish	Poland	0.92	20.42	0.92	19.67
Romansch	Switzerland	0.76	28.87	0.85	16.79
Russian	Ukraine	0.90	21.71	0.92	17.42
Slovak	Slovakia	0.89	21.29	0.90	19.29
Spanish	Chile	0.85	14.67	0.87	13.38

Spanish	Peru	0.91	36.67	0.92	32.75
Spanish	Spain	0.91	16.17	0.91	15.50
Spanish	Spain (Basque Country)	0.93	26.42	0.94	25.04
Turkish	Turkey	0.92	22.33	0.93	20.58
Ukrainian	Ukraine	0.86	18.92	0.89	15.38

Note: α_A : Average Cronbach's alpha across all participants; N_A : Average number of participants per emotion word; α_C : Average Cronbach's alpha with only converging participants (participant-rest correlation ≥ 0.20); N_C : Average number of converging participants.

In Table 6.3, the average interrater reliability across samples per emotion term is reported both for all participants and for the converging participants only. Differences were observed between the

emotion terms with respect to their reliability. Two emotion terms in particular, *compassion* and *contempt*, are characterized by a lower interrater reliability and by a larger number of participants that did not converge in their ratings (more than three people, rather than the two on average).

Table 6.3 Average interrater reliability (Cronbach's alpha) and average number of participants across samples per emotion words with all (A) and with only converging (C) participants

Emotion words	<i>Alpha</i> _A	<i>N</i> _A	<i>Alpha</i> _C	<i>N</i> _C
joy	0.95	24.29	0.95	23.09
happiness	0.94	24.35	0.94	22.76
fear	0.94	25.24	0.94	23.59
sadness	0.93	24.71	0.94	23.32
contentment	0.93	24.21	0.94	22.41
pleasure	0.93	24.47	0.94	22.82
shame	0.93	24.65	0.93	23.35
being hurt	0.92	26.85	0.93	25.38
love	0.92	23.47	0.93	22.21
despair	0.92	24.15	0.93	22.15
anger	0.92	23.79	0.93	22.53
stress	0.92	24.47	0.92	22.82
anxiety	0.91	24.71	0.93	22.74
disappointment	0.91	23.94	0.92	22.12
irritation	0.91	24.50	0.92	22.26
guilt	0.90	24.56	0.92	22.56
pride	0.90	27.59	0.92	24.06
hate	0.90	24.50	0.91	22.65
disgust	0.90	25.15	0.91	22.79
interest	0.89	26.06	0.91	23.15
surprise	0.87	24.00	0.89	22.09
jealousy	0.86	26.65	0.88	23.82
compassion	0.82	23.71	0.85	19.91
contempt	0.82	23.29	0.85	19.68

Note: *Alpha*_A: Average Cronbach's alpha across all participants; *N*_A: Average number of participants per emotion word; *Alpha*_C: Average Cronbach's alpha with only converging participants (participant-rest correlation ≥ 0.20); *N*_C: Average number of converging participants.

The mean feature scores were centered around the grand mean across all features per emotion term. This centering was done to reduce the impact of interindividual differences in response tendencies, as well as sample and cultural differences in them (see Chapter 5).

A trend was observed for non-Western samples to show less convergence between raters on the meaning of emotion terms. For instance, two of the least reliable samples were Black African samples. Unfamiliarity with a web-based testing design (or its paper and pencil version) constitutes a very likely explanation for this observation. A comparable effect was also observed between Western samples that differed in their familiarity with a web-based testing design. For instance, the average Cronbach's alpha among French-speaking students in Switzerland was 0.94, but it dropped to 0.76 in a sample of Romansch-speaking Swiss older adults that were not so familiar with the web-based testing environment.

As already mentioned, differences were observed not only between samples, but also between emotion words, especially for *compassion* and *contempt*, which showed a lower interrater reliability. A possible explanation for *compassion* could be that the meaning of the term depends on the emotion felt by the person for whom one feels compassionate. Depending on whether one thinks the other is undergoing a more or less negative experience, a different feature profile will emerge for *compassion*. It is less clear why *contempt* showed less interrater reliability than the other emotion terms, as it has even been proposed that contempt is an evolutionarily developed basic emotion (e.g., Ekman & Friesen, 1986).

In general, however, it can be concluded that with only 25 participants on average per term, very reliable feature patterns emerged. Thus, lay people are, on average, capable of identifying the decontextualized meaning of emotion words in their languages.

Notes

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- 2 The authors of this chapter are the dataset owners in the GRID project whose data has been used for the cross-cultural analysis. For further details on their affiliation and contact information please see the list of GRID collaborators at the beginning of this volume and on the GRID website (<http://www.affective-sciences.org/GRID>).
- 3 Additionally, participants were required to choose from two personality profiles, that which described them best. The two options were as follows: (Person A) “Likes languages a lot, reads a lot, expresses herself or himself clearly, likes games like cross-words, does not like numbers.” (Person B) “Is good at Maths, is at ease with abstract symbols, likes strategy games like chess, does not pay much attention to her or his writing style.”
- 4 All supplementary materials (SM) are available at the GRID website: <http://www.affective-sciences.org/GRID>. See Appendix 1 (“Availability”) for further details.