

# Prevalence of hereditary prosopagnosia – a worldwide survey

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## Abstract

Prosopagnosia, or face blindness, is a term designating the inability to recognize people by their face only. Until 2001, the few cases reported in the literature were almost all of the acquired form and the inborn form, with less than 20 case reports, was thought to be even rarer. In 2006, we showed that hereditary (syn. congenital) prosopagnosia belongs to one of the most common cognitive dysfunctions with a prevalence rate of 2.49% in the German Caucasian population. Following previous work, we extended the study to 17 populations from 13 countries on four continents. The observed overall prevalence rate of 0.93% (range 0.26% - 2.47%) of the populations studied worldwide is in the same order of magnitude. This is a minimal estimate, as only 41% of the subjects who were highly suspected of prosopagnosia allowed for a follow-up examination. Extrapolating this frequency to a complete coverage, the expected prevalence rate is 2.29%. Whenever we had access to family history, we found at least one first degree relative with prosopagnosia showing that this cognitive dysfunction is highly hereditary.

**Keywords** Prosopagnosia, hereditary, congenital, face blindness, agnosia, prevalence, worldwide

## Introduction

Prosopagnosia (PA) or face blindness is characterized by a highly selective impairment in individual recognition of faces. The term was coined by Bodamer (1947) by assimilating the Greek words *prosopon* (πρόσωπον) meaning face and *agnosia* (αγνωσία) – not knowing, ignorant [1]. As a psychiatrist, he came across the phenomenon of acquired prosopagnosia when examining soldiers suffering from brain injuries. The first reliable description of a congenital form – i.e. in the absence of any traumatic event – was introduced by Wigan (1844) in a man who was not able to remember faces [2]. Interestingly, he also had no inner imagery, a deficit that has later been found to occur in the vast majority of persons with prosopagnosia [3]. It was McConachie (1976) who first considered a genetic background when she came across prosopagnosia in a mother and her daughter [4]. Indeed, almost all persons with prosopagnosia, which are of the non-acquired form, show familial recurrence provided that the family members are investigated individually [5–8]. We therefore coined the term, hereditary prosopagnosia ([9], OMIM 610382). However, there is no generally accepted standard for the designation of the non-acquired type of prosopagnosia [6]. Rather, the terms, congenital [10], developmental [11] and childhood prosopagnosia [12], are mainly used to define the time of onset or the pathophysiology but not the aetiology. Prosopagnosia is mostly monosymptomatic but can also be syndromic as in Asperger syndrome [8], Capgras syndrome [13,14] or Möbius sequence [15]. In contrast to the very rare acquired prosopagnosia, congenital prosopagnosia was found to be surprisingly common with a prevalence

of 1-2% in a Caucasian population [6,16] and in a similar range in other ethnic groups in India and among Han-Chinese [7,17,18]. This prompted us to perform a systematic worldwide survey.

## **Methods**

Sample collection and evaluation of persons with prosopagnosia was performed as recently described in the German Caucasian, Indian and Han-Chinese population using a questionnaire-based screening followed by a semi-structured diagnostic interview [6,7,17]. Ethics approval was obtained by the University of Münster, Germany, protocol No 3XKenn2.

### *Participants*

Participants included in the study were chosen to represent very distinct ethnicities, from four continents, who fully agreed with participation, were naïve as to the purpose of the study, and – when necessary – with available support by local native speakers and translators.

- Germany: High school students in and around Münster/Westfalen and first year medical students of the Westfälische Wilhelms University, Münster (derived from [6])
- Belgium: Students of the University of Leuven
- Finland: Students of the University of Oulu [derived from [19])
- Romania: Citizen of Alba Iulia
- Turkey: Students of the Eskişehir Osmangazi Üniversitesi, Eskişehir,
- India: Students of the Banaras Hindu University (derived from [17])
- China: Hong Kong: Students of the Faculty of Medicine; The University of Hong Kong (derived from [7]); Beijing: First year students of the Beijing Normal University (derived from [7]); Chang Chun: Students of Chang Chun Taxation College
- Indonesia: Island of Nias, High school students and general population in the area around the capital town Gunungsitoli
- South Africa: First year students of Psychology at the University of Zululand, KwaDlangezwa, near Richards Bay, South Africa
- Sudan: Students from the campus of the University of Khartoum
- Morocco: Students from the campus of the Cadi Ayyad University, Marrakech
- Peru: local citizen of Cajamarca
- Brasilia: São Luís, students of the Universidade Ceuma, patients and their families of Maternidade Infantil; citizen from Coroaá, villagers from Jatobá (near the city of Bacabal) (derived from [20]).

### *Screening tools*

#### *a) Long screening questionnaire*

In the beginning of our studies, a four-page questionnaire (long form) was used: German version [6]; English version in India [17], Hong Kong [7], and Zululand; Finnish version (Supplements 1 - 3).

We concentrated on anamnestic data allowing to exclude to some extent acquired forms of prosopagnosia by traumatic brain lesions such as perinatal asphyxia, meningitis, brain injury/surgery, epileptic attacks. We further asked for concomitant visual agnosias as well as for presence of inner images of facial and non-facial objects. The key questions covered: (a) the dimension of face recognition, learning/memorizing individual faces, false-positive, and false-negative rates of face recognition; (b) development of adaptive strategies or compensational behavior, e.g. relying on hair, haircut, and gait or by avoiding meetings; (c) family history of affected first-degree relatives. Among facultative symptoms, we asked whether gaze contact was necessary. Generally, unimpaired functions were regarded as recognition of facial emotions, judgement of facial attractiveness, recognition of gender from faces, and recognition of persons from non-facial cues.

#### *b) Short screening questionnaire*

Later the number of questions was reduced. The most specific themes were taken for generation of a 21-item questionnaire, with items rated on a five-point Likert scale. The scale was designed with a balancing key and an equal number of positive and negative statements regarding possible cognitive dysfunctions of

prosopagnosia. German, English (India, Hongkong, Zululand), Dutch (Belgium), Portuguese (Brasilia), Spanish (Peru), Romanian (Romania), Turkish (Turkey), Indonesian (Island of Nias), Arabian (Sudan), French (Morocco), and Chinese versions (Beijing, Chang Chun) of the scale were developed for purposes of validity and culture fair assessment with regard to the various, above mentioned ethnicities (Supplements 4 - 14).

We assumed that these 21 items covered one or more of the following nine dimensions:

Face recognition

- 01 I can easily follow actors in a movie
- 02 I often do not recognize people who I know
- 04 People often tell me I do not recognize them
- 05 I can decide immediately if a face is familiar
- 07 I always recognize family members
- 12 I recognize famous people immediately
- 13 I sometimes recognize people I do not know
- 19 I avoid meetings as I might overlook familiar people
- 20 I do not recognize people the day after a brief meeting

Learning/memorizing individual faces

- 06 It takes me a long time to recognize people
- 20 I do not recognize people the day after a brief meeting

False positive and false negative rates of face recognition

- 13 I sometimes recognize people I do not know
- 04 People often tell me I do not recognize them

General facial information, such as gender, physical attractiveness, and emotions

- 14 I can decide immediately whether a face is male or female
- 17 I can see if a face is attractive
- 18 I have problems to read emotions in a face

Demonstrating the presence/absence of inner images of familiar faces and/or objects

- 11 I can easily form pictures of close friends in my mind
- 10 I can easily form a mental picture of a red rose
- 08 I can easily find things, which are not in the right place
- 15 I can easily walk backwards in a room

Complex pattern recognition on the example of orientation

- 16 I get lost in new places

Using strategies

- 09 I mostly recognize people by their voices
- 19 I avoid meetings as I might overlook familiar people

Socialization

- 21 I have much contact with other people

Heritability

- 03 Some of my family have problems in recognizing faces

*Cut off points for invitation to semi-structured interview and final diagnostic assessment*

*a) Long screening questionnaire: "Highly suspicious" was assumed if the questionnaire revealed:*

- (1) Anamnestic data did not indicate any event of brain lesion (perinatal asphyxia, epileptic attack, meningitis, injuries, brain surgery) or neurological or psychiatric disorders,
- (2) The presence of severe difficulties in recognizing familiar faces or of faces outside of the normal context, for example, a neighbour at the station.
- (3) Inability to decide whether a face was familiar, including false positive and negative decisions, e.g., that a stranger was falsely recognized as familiar, and that a familiar person was classified as unknown. In general, we found that persons with prosopagnosia suffer from a self-described uncertainty of face recognition resulting in an insufficient level of confidence to decide whether a face was known or unknown.
- (4) Prolonged decision time for face recognition. This seems to be consequence of the lack of face recognition confidence, as is
- (5) Poor face memory after short contacts.

- (6) Development of adaptive strategies: e.g. not to go to places where other people could be unexpectedly met, or being first to an appointment in a restaurant, or a habit of looking absent minded or to the floor when walking in the street
- (7) Heavily relying on non-facial features for person recognition like voice, gait, accessories, hair, haircut etc., and
- (8) Positive family history of at least one first degree relative.

*b) Short screening questionnaire*

The scoring stencil of the five-point Likert score was the same in all language editions of the questionnaire (e.g. see the English version Suppl. 5). Answers that indicated prosopagnosia obtained a higher score of up to 5, respectively. The sum of each respondent was determined and a mean value for the respective ethnic group was calculated. One standard deviation (SD) above the mean score was taken as a criterion for “highly suspicious for prosopagnosia” [7,17].

*Final diagnostic assessment*

Diagnosis of prosopagnosia was made by a semi-structured interview of about 60 to 90 minutes. We first excluded other causes for degraded face recognition such as poor eyesight, poor visual acuity, or earlier brain damage (head injury, encephalitis/meningitis, cerebral anoxia/hypoxia, asphyxia, cerebral malformation). We asked for judgement of gender, attractiveness or emotional information in faces. We further asked for an individual and familial history of psychiatric diseases, which could be accompanied by agnosias, e.g. Asperger’s syndrome, autistic spectrum disorders. In addition, we asked for other associated cognitive and behavioural deficits, such as sense of orientation, hints to object agnosias, differentiation of inter and intra-class objects e.g., very well-known plants/tree species or animals/birds species; colour blindness, social skills, e.g. number of friends, eye contact.

Finally, the manifestation of prosopagnosia was considered to lie along four dimensions [7,8,21–23]:

- (1) Uncertainty in face recognition: The leading symptom, which affected people report, is an irritating lack of confidence in the recognition of faces and the inability to learn new faces to an extent that they can easily be recognized. Other symptoms include not recognizing familiar people unexpectedly or in crowded places, confusing unknown persons with familiar persons. Only anecdotal mentioning of not recognizing people was not taken as a positive criterion.
- (2) Significantly prolonged recognition time for faces.
- (3) Development of compensatory strategies as sign of a longstanding and frequent problem: (i) adaptive behaviour to cope with face recognition impairment; Persons with prosopagnosia rely heavily upon other personal characteristics, like voice, gait, clothing, etc.. (ii) Avoidance behaviour: avoidance of places other people could be met unexpectedly, being first to an appointment in a restaurant, or looking absent minded whenever walking in the street; (iii) Giving explanations such as: “Sorry I have forgotten my glasses” or “I was absent minded”.
- (4) Repeated anecdotal stories of events such as having overlooked familiar people were found to be extremely helpful. Persons with prosopagnosia also typically have problems in following the actors in a movie especially when the scenes change frequently or the characters are similar (e.g., mixing up different inspectors in detective/crime films).

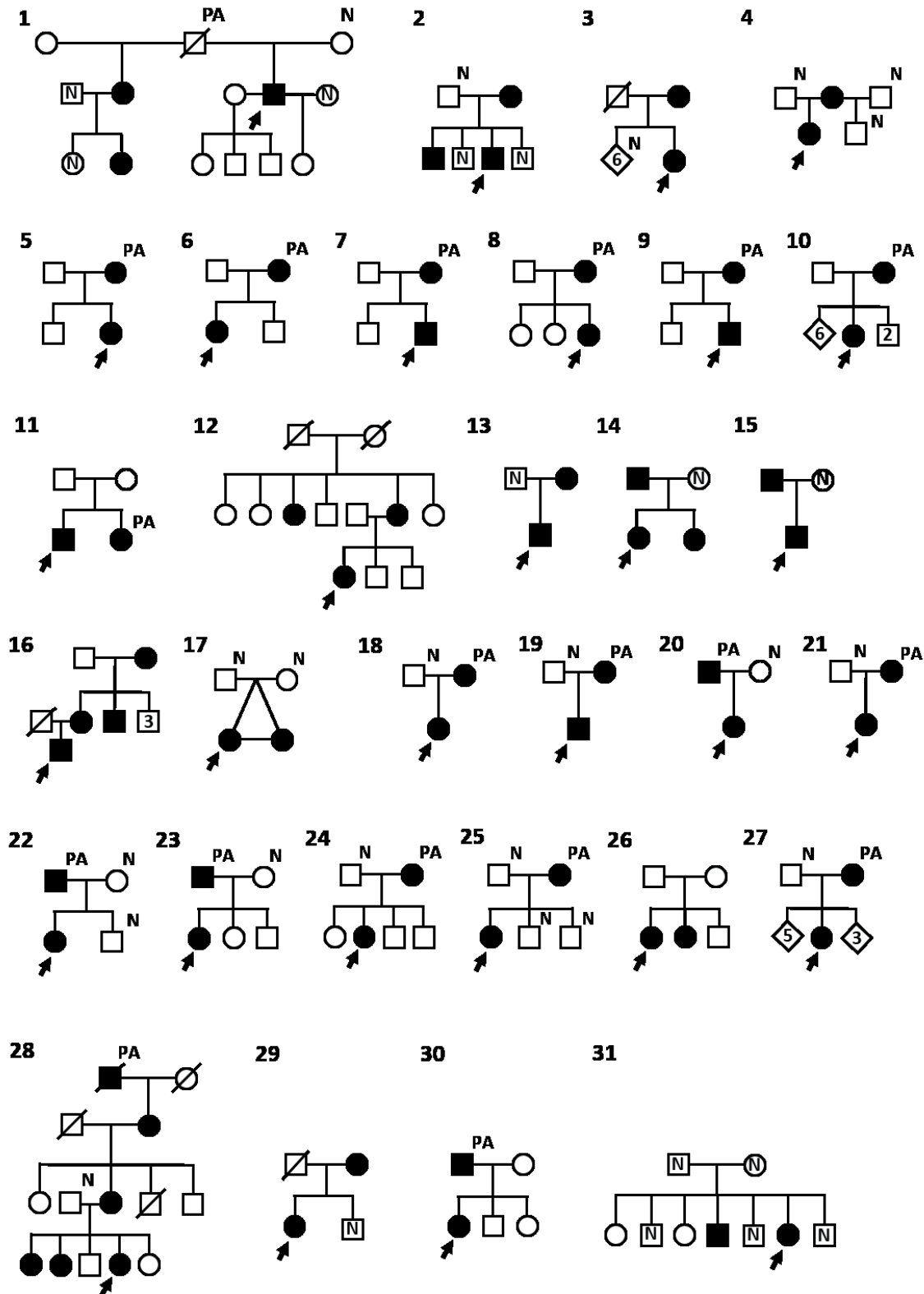
## **Results**

Seventeen populations from 13 countries on 4 continents were studied (**Table 1**). A total of 8,624 participants (3,460 males and 5,164 females) completed questionnaires, with 1,185 classified as highly suspicious of prosopagnosia. Of these, 486 subjects (41%) agreed to an in-depth interview and finally 80 persons (28 males and 52 females) were diagnosed as persons with prosopagnosia, resulting in a total frequency of 0.93% worldwide. The observed prevalence rates of the populations studied are of the same order of magnitude and give a minimum estimate. As only 486 out of 1,185 (41%) subjects highly indicative of prosopagnosia were available for a diagnostic in-depth interview, an expected prevalence rate of 2.27 % worldwide can be extrapolated.

In 31 interviews, the index subjects gave us access to their family history. We found in each family at least one first degree relative with prosopagnosia and in total 42 persons with prosopagnosia (**Figure 1**).

**Table 1.** Synopsis of questionnaire-based screening for prosopagnosia in selected populations worldwide. The observed prevalence is 0.93%. This is compatible with an expected prevalence of 2.27% if all 1,185 subjects highly suspicious for prosopagnosia could have been tested. Abbreviations, n.d. = not determined, Annotations: \* = cut-off 1 SD above mean score, <sup>1)</sup>adapted from [6], <sup>2)</sup>[19] <sup>3)</sup>[17], <sup>4)</sup>[18], <sup>5)</sup>[36], <sup>6)</sup>[20].

Continent Country City	Questionnaires distributed (N)	Questionnaires completed			Highly suspicious for prosopagnosia by questionnaire based screening (for selection criteria see text)	Subjects agreeing to an in-depth interview			Diagnosis of prosopagnosia established by the interview (for test items see text)			Prevalence rate [%]		
		Male (N)	Female (N)	Total (N)		Male (N)	Female (N)	Total (N)	Male (N)	Female (N)	Total (N)			
<b>Europe</b>														
Germany <sup>1)</sup>	n.d.	266	423	689	25	40	65	19	24	43	6	11	17	2.47
Belgium	1,357	468	658	1,126	95	87	182*	12	8	20	2	1	3	0.27
Finland <sup>2)</sup>	490	223	188	411	16	13	29	12	12	24	2	1	3	0.73
Romania	457	112	294	406	20	54	74	11	42	53	0	2	2	0.49
<b>Asia minor</b>														
Turkey	n.d.	261	304	565	28	33	61*	8	5	13	3	5	8	1.42
<b>Asia</b>														
India <sup>3)</sup>	n.d.	69	129	189	6	22	28	2	9	11	0	1	1	0.53
<b>China</b>														
Hongkong <sup>4)</sup>	750	297	236	533	67	66	133	59	61	120	5	5	10	1.88
Beijing <sup>5)</sup>	1,501	502	859	1,361	18	41	59*	5	21	26	1	8	9	0.66
Chang Chun	548	171	327	498	10	39	49*	4	13	17	1	2	3	0.60
<b>Indonesia</b>														
Nias Island	685	274	373	647	56	67	123*	10	9	19	2	1	3	0.46
<b>Africa</b>														
Zululand	n.d.	103	431	534	23	94	117	3	27	30	0	3	3	0.56
Sudan	661	281	168	449	39	27	66*	31	15	46	1	1	2	0.45
Morocco	n.d.	126	259	385	15	33	48*	1	1	2	1	0	1	0.26
<b>South-America</b>														
Peru	390	191	199	390	38	44	82	18	17	35	2	6	8	2.05
Brasilia <sup>6)</sup>	501	116	316	432	13	56	69	6	21	27	2	5	7	1.62
<b>Total</b>	-	3,460	5,164	8,624	469	716	1,185	201	285	486	28	52	80	0.93



**Figure 1.** Pedigrees of those index subjects who allowed further family studies. Numbers 1 - 3 are from Finland (modified from [19]), 3 - 4 Romania, 5 - 11 Turkey, 12 India (modified from [17]), 13 - 16 China, Hongkong (modified from [18], 17 - 21 China, Beijing, 22 - 23 China, Chang Chun, 24 - 27 Peru, 28 - 31 Brasilia.

Arrows indicate the index subject. Filled symbols are prosopagnosics. *N* (= normal phenotype) within a symbol denotes a normal phenotype which was explicitly tested by one of us, whereas *N* and *PA* (= prosopagnosia) outside a symbol is based on plausible suggestions made by other family members. Empty symbols and no annotations denote subjects that could not be tested at all.

## Discussion

The study satisfied its main aim of providing an estimate of the worldwide prevalence of congenital prosopagnosia. This large-scale field research included questionnaire based screening for face recognition and related abilities followed by an in-depth semi-structured interview for diagnostic assessment of those subjects highly suspicious for prosopagnosia [6,7,17]. This basic diagnostic procedure was adopted by Zhao et al. [24] and Verfaillie et al. [25] and extended by adding diagnostic behavioral tests (step 3, [24]), validation by famous-face tests (step 4, [24]), Benton face recognition task and testing of holistic processing [25] to allow for a more objective and strict diagnosis.

In our field research there was no capacity to perform any detailed behavioral and functional testing. However, the principal quality of our diagnostic assessment was demonstrated by several previous studies. The designated persons with prosopagnosia - selected in these studies by our screening questionnaires and diagnostic interviews - always contrasted to control groups when further tested by neuropsychological and functional testing for face recognition skills:

- (i) Fifteen out of 16 participants selected by the semi-structured interview showed significant deficits in the combined neuro-psychological test results on short-term and long-term recognition of faces. Their scores in the questionnaire-based self-assessment were significantly correlated with the overall experimental test of face recognition performance and there was no overlap with the group of persons with prosopagnosia and control individuals [21,22].
- (ii) In a distinct participant group all 21 designated persons with prosopagnosia performed the Cambridge Face Memory Test (CFMT, [26]) significantly poorer than the control group [27,28].
- (iii) Sixteen persons with prosopagnosia taken from the study by Esins et al. [27,28], all showed significant differences in performance of all face tests as compared to a control group, while both groups did not differ in the object tests [29].
- (iv) All six persons preselected for prosopagnosia by the 2-step procedure by Verfaillie et al. [25] had impaired face recognition abilities on the Benton face recognition task compared to controls. They also showed impaired holistic processing as assessed with a gaze contingent window and mask paradigm. Taken together, the rate of false positive persons with prosopagnosia should be low in this two-step procedure and is not expected to significantly influence the established prevalence rate.

The probability that subjects with the acquired form of prosopagnosia were included coincidentally is very low. First, these cases are extremely rare and only reported anecdotally. Second, we checked for traumatic/infectious brain events in the individual subject history. Third, it is further minimized by observation of at least one first-degree relative in all index probands who allowed further interrogation of their family history, making hereditary prosopagnosia plausible.

Our screening instruments used for the economic determination of prevalence rates in many population groups are also well suited for the recruitment of large groups of persons with prosopagnosia. We have been able to show this for large Chinese populations: Taking a score of more than one standard deviation above the mean, nearly every 4<sup>th</sup> diagnostic interview reveals a prosopagnosic. When selecting for scores being three standard deviations above the mean, all probands were prosopagnosics [30,31]. Song et al. [32] and Zhao et al. [24] screened with a Chinese version of our questionnaire 1.512 and 9.533 Beijing university students resulting in 8 and 64 prosopagnosic participants, who then underwent detailed behavioral and functional testing.

Such high numbers of test persons are necessary when studying the considerable phenotypical heterogeneity among persons with prosopagnosia, which might also reflect genetic heterogeneity [21,28,29,33-37]. These studies most often focus on dysfunctions in the cognitive architecture evidence that CP can appear in a rather pure form, but often also associated with other impairments in face processing or general visual abilities. Even reducing the heterogeneity of diagnostic procedures, and keeping the genetic background as similar as possible, provided evidence for high variability in performance in persons with CP as well as persons at risk [37]. Thus, it seems necessary to collect rather large samples to account for this phenotypic variability. This screening procedure might serve as a selection criterion for which persons will undergo intensive and elaborate screenings, e.g. with the CFMT, Cambridge Face Perception Test (CFPT) [26] and test batteries for general visual functions.

Extended interrogations of the family history shows a high heredity of prosopagnosia. We therefore still argue for the term *hereditary* prosopagnosia [9]: (i) In a previous study, we could identify a segregation of prosopagnosia over two to four generations in 39 families and there was only one family with a single case. It is not clear whether this is a sporadic or an isolated (genetic, *de novo*) case of prosopagnosia [7]. (ii) Also, in the present worldwide study, we had access to the family history of 31 impaired index probands, finding at least one first degree relative with prosopagnosia, respectively. Interestingly, almost all of the index subjects in the present and other studies [6 – 9, 18] were not aware of other impaired family members unless actively interviewed and probed to this effect. For example, we know a monozygotic pair of twins, who lived together for more than 70 years before learning of each other's prosopagnosia while participating in the study [8].

From a large collection of prosopagnosic families, phenotypic heterogeneity is obvious. This is also certainly true for genetic heterogeneity. Despite our observations in large families we have to revise our previous assumption of a simple autosomal dominant inheritance [7,8,37]. Since many years there are intensive molecular genetic studies by several groups worldwide, but data are still lacking – clearly rejecting a simple mode of inheritance as the only reason. It is tempting to speculate that these findings point to a complex gene network associated with brain development [40]. Depending on the impairment, different familiar segregation patterns are expected following either classical modes of inheritance (Mendelian phenotype), polygenic or multifactorial inheritance, dynamic mutations (unstable repeat expansion) and/or epigenetic modifications [40]. The similar prevalence rate and the high familiarity of prosopagnosia in very distinct ethnic groups might point to an old genetic background, at least in humans and certainly in mammals and earlier in evolution. Sheep can accurately discriminate not only conspecifics but also humans by facial cues only - even after 600 days [41]. As such high visual expertise might be impaired in a number of cases, it certainly seems only a matter of time before we find prosopagnosia in sheep and other mammals and vertebrates.

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### **Conflict of Interest Statement**

The authors have no conflicts of interest to disclose.

### **Statement of Ethics**

The study was approved by the ethical committee of the Westfälische Wilhelms University of Muenster, Germany, protocol No 3XKenn2.

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## Supplements 1 to 14

### Foreign language editions of the questionnaires used in this study

#### Long screening questionnaires

- 01 German (Germany)
- 02 English (India; Hongkong; Zululand)
- 03 Finnish (Finland)

#### Short screening questionnaires

- 04 German (Germany)
- 05 English (India; Hongkong; Zululand)
- 06 Dutch (Belgium)
- 07 Portuguese (Brasilia)
- 08 Spanish (Peru)
- 09 Romanian (Romania)
- 10 Turkish (Turkey)
- 11 Indonesian (Island of Nias)
- 12 Arabian (Sudan)
- 13 French (Morocco)
- 14 Chinese (China: Beijing, Chang Chun)

The scoring stencil is explicitly given in *04 German* and *05 English* and is for all short screening questionnaires the same.



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## Fragebogen zur Prosopagnosie

v2.02

Datum: \_\_\_\_\_

Wir werten diesen Fragebogen nur anonym aus. Er dient ausschließlich der wissenschaftlichen Erforschung der Prosopagnosie.

Für direkte Rückfragen geben Sie bitte Ihren Namen und Ihre Handy- oder Telefonnummer an.

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Handy:/Tel: \_\_\_\_\_

**Aus welchem Land kommen sie und welcher ethnischen Gruppe gehören Sie an ?**

\_\_\_\_\_

Bitte zuerst einige persönliche Angaben:

Alter: \_\_\_\_\_ Jahre

Geschlecht:  weiblich  männlich

Rechtshänder

Linkshänder

Ausbildung:

Beruf:

1. Haben Sie Fehlsichtigkeiten?

Nein

Ja       Kurzsichtig  Weitsichtig  Schielen  Sonstiges \_\_\_\_\_

Wieviele Dioptrien? \_\_\_\_\_ Korrigiert?  Ja  Nein

2. Wie viel Kontakt haben Sie zu Menschen?

sehr viel       viel       mittel       wenig       sehr selten       gar nicht

3. Wann haben Sie zum ersten Mal von Prosopagnosie gehört?

heute       vor Tagen       vor Wochen       vor Monaten       vor Jahren

4. Stellen Sie sich vor, Sie werden beim Einkaufen von jemandem angesprochen, der Sie offensichtlich zu kennen scheint. Allerdings haben Sie keine Ahnung, um wen es sich handelt. Was ist Ihre erste Reaktion?

Sie können mehrere Antworten ankreuzen.

Ist mir noch nie passiert! Aber ich würde wohl denken, da verwechselt mich jemand

Ich versuche anhand der Stimme, Wortwahl, Kleidung herauszufinden, wer vor mir steht

Ich frage die Person nach ihrem Namen und woher ich sie kenne.

Auch wenn ich die Person sofort erkenne, weiß ich oft ihren Namen nicht

Sonstiges:

5. Und jetzt einige Fragen zu Ihrem Orientierungsvermögen:

Schreiben Sie bitte: ++ für *sehr gut*, + für *gut*, 0 für *geht so*, - für *schlecht* und - - für *sehr schlecht*

Wie gut ist Ihr Orientierungsvermögen in einer unbekanntem Stadt?

Wie gut können Sie sich mit Stadtplan zurechtfinden?

Wie gut finden Sie sich auf Anhieb in großen Gebäuden zurecht?

Wie gut finden Sie sich im Wald ohne feste Wege zurecht?

Wie gut können Sie einen Weg zurückverfolgen, wenn Sie den Hinweg kurz vorher gegangen sind?

## 6. Wie gut erkennen Sie Pflanzen und Tiere?

Schreiben Sie bitte: ++ für *sehr gut*, + für *gut*, 0 für *geht so*, - für *schlecht* und - - für *sehr schlecht*

Wie gut können Sie verschiedene Bäume (Eiche, Erle, Buche usw.) auseinanderhalten?

Wie gut können Sie Vogelarten auf Anhieb auseinanderhalten?

Wie gut können Sie einen Kanarienvogel von einem Wellensittich unterscheiden?

Können Sie Haustiere (Hunde oder Katzen) individuell unterscheiden? Könnten Sie also Ihre Katze oder Nachbars Katze von fremden Katzen unterscheiden?

## 7. Wie gut erkennen Sie Menschen

*Oft*      *Selten*      *Nie*

Erkennen Sie in Fernseh- oder Kinofilmen die Schauspieler? Dabei spielt es keine Rolle, ob Ihnen der Name einfällt.

Manche Leute sagen, sie könnten Filmen schlecht folgen, weil die dargestellten Charaktere alle gleich aussehen. Passiert Ihnen das auch?

Passiert es Ihnen, dass Sie ihre Verwandten oder sogar sich selbst auf Photos oder Videofilmen nicht wiedererkennen?

Können Sie Bekannte allein an der Stimme erkennen?

Haben Sie schon mal gute Bekannten oder Freunde nicht erkannt?

Haben Sie schon mal ein Familienmitglied nicht erkannt?

Haben Sie schon mal Ihre Geschwister oder Eltern nicht erkannt?

Bitte schildern Sie kurz eine besonders markante Situation:

## 8. Wie reagieren Sie im Gespräch auf Ihr Gegenüber?

*Ja*      *Nein*

Stört es Sie, wenn Sie jemand länger anschaut?

Stört es Sie, wenn Ihr Gegenüber Sie nicht oder kaum anschaut?

Können Sie Stimmungen im Gesicht anderer gut lesen?

Ist der Blickkontakt in einem Gespräch für Sie wichtig?

Schauen Sie anderen beim Gespräch während der meisten Zeit ins Gesicht?

## 9. Woran erkennen Sie eine Person?

*Vorwiegend    Weniger    Gar Nicht*

Person intuitiv als Ganzes

Gesicht

Spontan ohne nachzudenken

Stimme

Körperhaltung, Gang

Besondere Merkmale, z.B. Narben, Hinken, usw.

Typische Frisur, Kleidung, Brille, Schmuck, Schuhe

Andere Merkmale, darunter:

## 10. Sie sind zu einer Party eingeladen, wo Sie einige Bekannte zwischen vielen Fremden treffen werden. Welche der folgenden Gedanken könnten von Ihnen stammen?

*Ja            Nein*

Es ist eine gute Gelegenheit, neue Leute kennen zu lernen.

Vielleicht kann ich mich vor der Party drücken.

Ich muss mal genau überlegen, wer von meinen Bekannten dort sein könnte, damit ich sie dann dort wiedererkenne.

So große Partys liegen mir nicht. Ich habe lieber einen kleinen überschaubaren Kreis.

Ich bin gerne unter vielen Menschen.

Ich befürchte, jemanden, den ich kennen müsste, zu übersehen.

Am besten gehe ich früh zur Party, dann kann ich beobachten, wer nach mir noch kommt.

Sonstiges:

## 11. Was wir sonst noch fragen wollten ...

Freie Antworten, schreiben Sie also, was Ihnen dazu einfällt!

Sind Sie schon mal unvermittelt angesprochen worden mit: „Du siehst wohl auch keine Leute mehr?“ (oder so ähnlich?)

Würden Sie einen Politiker oder einen bekannten Filmschauspieler erkennen, wenn er auf der Straße oder auf dem Flughafen an Ihnen vorbeiläuft?

Würden Sie sich zutrauen, jemanden auf dem Bahnhof abzuholen, dessen Gesicht Sie nur von einem Photo kennen?

Fällt es Ihnen schwer, im Restaurant den Tisch zu finden, an dem Ihre Freunde sitzen?

Fällt es Ihnen schwer, schnell zu entscheiden, ob Sie jemanden schon einmal gesehen haben?

Vielen Dank für Ihre Mitarbeit.  
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**Institute of Human Genetics**

Prof. Dr. med. Ingo Kennerknecht



**Questionnaire Prosopagnosia**

Date: \_\_\_\_\_

V2.01

This questionnaire will be evaluated anonymously. In case that additional questions should arise, please

leave your name, e-mail, and phone number.

Name: \_\_\_\_\_

E-mail: \_\_\_\_\_

Telephone/Cell phone: \_\_\_\_\_

**From which city/place in the country or outside the country does your family originally come from?** \_\_\_\_\_

Let's start with some personal information:

Age: \_\_\_\_\_ years

sex:

female

male

Right handed

Left handed

Qualification:

Profession:



1. How good is your vision?

no defects

defective       myopia       hyperopia       squinting       other \_\_\_\_\_

How many dioptries? \_\_\_\_\_ corrected?  Yes  No

Color vision ? discrimination between red and green  Yes  No

2. How much contact do you have with other people?

very much       much       some       litte       very little       none

3. When did you hear about prosopagnosia for the first time?

today       days ago       weeks ago       months ago       years ago

4. Imagine that someone starts talking to you in the street, who seems to know you, but you have no idea, who he/she might be. What is your first reaction?

Please tick all answers which might apply

Never happened to me! But I would assume, that I am being mistaken for somebody else

By listening to the voice and the wording and by looking at the clothing, I try to find out, who it could be

I ask the person's name and perhaps, where he/she would know me from

Quite often, I can't remember the name, even though I might recognize the person on first sight

Else:

5. Now some questions about your sense of orientation:

Please use: ++ for *very good*, + for *good*, 0 for *fair*, - for *poor* and - - for *very poor*

How good is your sense of orientation in an unknown city?

How well do you manage with a city map?

How good is your sense of orientation in big buildings?

How good is your sense of orientation in a forest without visible paths?

After you have covered a certain distance, how good can you trace your way back?

6. How well do you recognize animals and plants?

Please use: ++ for *very good*, + for *good*, 0 for *fair*, - for *poor* and - - for *very poor*

How well can you tell the different species of trees apart (oak, beech, cherry etc.)?

How well can you tell the different species of birds apart?

How well can you tell a canary from a budgerigar?

Can you recognize pets (cats, dogs) individually? Could you tell your cat (or neighbour's cat) from other cats?

7. How well do you recognize other people?

*Often*      *Rarely*      *Never*

Do you recognize actors on TV or in movie films?

Some people say that plays or movies can be hard to follow, because the characters all look the same. Does that happen to you as well?

Do you find it hard or impossible to recognize your relatives and friends and even yourself on old photographs or videos?

Have you ever failed to recognize relatives or friends?

Have you ever failed to recognize a family member?

Have you ever failed to recognize your parents, brothers and sisters or children?

Please outline a striking situation which you remember:

8. In a conversation, how do you interact with others?

*Yes*      *No*

Do you mind, if somebody looks at you for a longer period of time?

Or, on the contrary, do you mind, if somebody does not look at you most of the time, or not at all?

Can you easily read emotions in other people's faces?

Is eye-contact important to you during a conversation?

In a conversation, do you look at the other person's face most of the time?

9. How do you recognize a person?

	<i>Please indicate the level of importance:</i>	<i>Most</i>	<i>Less</i>	<i>None</i>
Person as a whole, intuitive				
Face				
Spontaneously, without thinking				
Voice				
Bearing, gait				
Individual marks (beard, scars, limping, etc.)				
Typical hair cut, clothing, accessories (glasses, jewellery, shoes etc.)				
Other features, please indicate:				

10. You are invited to a party, where you expect to meet some people you know among many others whom you don't know. Which of the following thoughts could be yours ?

	<i>Yes</i>	<i>No</i>
It is a good opportunity to meet people and make new acquaintances		
Perhaps I can skip the party		
I better give some thoughts to the questions, who of my acquaintances will be there, because otherwise, I might overlook them.		
I don't like big parties. I prefer a smaller circle of friends.		
I like to be among many other people.		
I might overlook somebody, whom I ought to know.		
It would be advisable to go early, in order to watch the arrivals of the other guests		
Other:		

## 11. Some more questions ...

Open answers, please write whatever you feel appropriate

Have you ever been addressed unexpectedly: „Hey, aren't you greeting your friends anymore ?“ (or something like this?)

Would you expect to recognize a well known politician or a famous actor, when you see him or her in the street or at the airport??

If you knew someone only from a photograph, would you think you could pick him up at the station

If you have left your table in a restaurant for any reason, will it be difficult for you to find your way back?

Do you find it difficult to decide without hesitation if you know a face or not?

Thank you very much for your kind cooperation.

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STUD. MED. SEBASTIAN WENTZEK



V 2.08 (fin)

## Kyselylomake

Prosopagnosia (face blindness)

Pvä: \_\_\_\_\_

Tämän kyselylomakkeen tietoja käsitellään anonyymisti. Tiedot palvelevat yksinomaan Prosopagnosian tieteellistä tutkimusta. Pyydämme sinua kuitenkin ilmoittamaan nimesi ja puhelinnumerosi suorien lisäkysymysten varalta.

Nimi: \_\_\_\_\_

E-mail: \_\_\_\_\_

tai

Puh.: \_\_\_\_\_

Henkilötiedot:

IKÄ: _____ vuotta
-------------------

Sukupuoli: <input type="checkbox"/> Nainen <input type="checkbox"/> Mies
--

<input type="checkbox"/> Oikeakätinen	<input type="checkbox"/> Vasenkätinen
---------------------------------------	---------------------------------------

KOULUTUS	
Ammatti:	
Kansallisuus:	
Kielitaito	

1. Onko sinulla silmien taittovirhettä?

*Ei*

*KYLLÄ*    *LIKINÄKÖISYYTTÄ*    *KAUKONÄKÖISYYTTÄ*    *KARSASTUSTA*,    *MUUTA* \_\_\_\_\_

*KUINKA MONTA DIOPTRIAA ? \_\_\_\_\_ ONKO VIRHETTÄ KORJATTU?    KYLLÄ    EI*

2. Kuinka paljon olet yhteydessä muihin ihmisiin?

<input type="checkbox"/> Hyvin paljon	<input type="checkbox"/> Paljon	<input type="checkbox"/> Kohtalaisesti	<input type="checkbox"/> Vähän	<input type="checkbox"/> Hyvin harvoin	<input type="checkbox"/> Ei lainkaan
---------------------------------------	---------------------------------	--	--------------------------------	--	--------------------------------------

3. Milloin kuudit ensi kertaa Prosopagnosiasta?

<input type="checkbox"/> <i>TÄNÄÄN</i>	<input type="checkbox"/> Joitakin päiviä sitten	<input type="checkbox"/> <i>VIIKKOJA SITTEN</i>	<input type="checkbox"/> Kuukausia sitten	<input type="checkbox"/> <i>VUOSIA SITTEN</i>
--	---	---	---	---

4. Kuvittele, että olet ostoksilla ja henkilö, joka selvästi näyttää tuntevan sinut, puhuttelee sinua. Oikeastaan sinulla ei ole aavistustakaan, kuka kyseinen henkilö on. Mikä on ensimmäinen reaktiosi?

*VOIT RASTITTAA MYÖS USEAMPIA VAIHTOEHTOJA.*

<i>MINULLE EI OLE KOSKAAN TAPAHTUNUT NIIN, MUTTA AJATTELISIN, ETTÄ HENKILÖ SEKOITTAI MINUT JOHONKIN TOISEEN.</i>	<input type="checkbox"/>
<i>YRITÄN PÄÄTELLÄ ÄÄNESTÄ, SANAVALINNOISTA JA PUKEUTUMISESTA, KUKA EDESSÄNI SEISOO.</i>	<input type="checkbox"/>
<i>KYSYN HENKILÖLTÄ HÄNEN NIMEÄÄN JA MISTÄ TUNNEMME TOISEMME.</i>	<input type="checkbox"/>
<i>VAIKKA TUNNISTANKIN HENKILÖN HETI, EN TIEDÄ USEINKAAN HÄNEN NIMEÄÄN.</i>	<input type="checkbox"/>
<i>JOTAIN MUUTA:</i>	<input type="checkbox"/>

5. Sitten muutama kysymys suunnistustaidoistasi:

Rastita seuraavan asteikon mukaisesti

++ todella hyvä, + hyvä, 0 menettelee, - huono -- hyvin huono

++ + 0 - --

Kuinka hyvät ovat suunnistustaitosi vieraassa kaupungissa?					
Kuinka hyvin löydät perille kaupungissa kartan avulla?					
Kuinka hyvin löydät perille ollessasi suuressa rakennuksessa ensi kertaa?					
Kuinka hyvin löydät perille metsässä ilman merkittyjä teitä?					
Kuinka hyvin pystyt palaamaan takaisin samaa reittiä, jota pitkin olet juuri vähän aikaa sitten kävellyt?					

6. Kuinka hyvin tunnet kasveja ja eläimiä?

Rastita seuraavan asteikon mukaisesti

++ todella hyvin, + hyvin, 0 menettelee, - huonosti -- hyvin huonosti

++ + 0 - --

KUINKA HYVIN EROTAT ERI PUULAJIT (TAMMI,LEPPÄ, PYÖKKI JNE..) TOISISTAAN?					
KUINKA HYVIN EROTAT ERI LINTULAJEJA TOISISTAAN?					
KUINKA HYVIN PYSTYT EROTTAMAAN KANARIANLINNUN UNDULAATISTA?					
PYSTYTKÖ EROTTAMAAN KOTIELÄIMIÄ (KOIRIA TAI KISSOJA) TOISISTAAN? EROTATTEKO SIIS KISSANNE TAI NAAPURINNE KISSAN VIERAASTA KISSASTA?					



## 7. Kuinka hyvin tunnistat ihmisiä?

	<i>Usein</i>	<i>Harvoin</i>	<i>Ei koskaan</i>
Tunnistatko televisio- tai elokuvanäyttelijöitä? Tässä tapauksessa ei ole merkityksellistä, juolahtaako mieleesi näyttelijän nimi			
Jotkut ihmiset sanovat, että heidän on vaikea seurata elokuvia, koska kaikki niissä esiintyvät roolihahmot näyttävät samalta. Tuntuuko sinusta myös siltä?			
Tunnistako tutut henkilöt vain heidän äänensä perusteella (jos kuulet sen puhelimessa, viereisessä huoneessa)?			
Tapahtuuko sinulle usein niin, että et tunnista sukulaisiasi tai jopa itseäsi valokuvista tai videonauhoilta?			
Onko sinulle tapahtunut niin, että et ole tunnistanut tuttujasi tai ystäviäsi?			
Onko sinulle tapahtunut niin, että et ole tunnistanut perheen jäsentäsi?			
Onko sinulle tapahtunut niin, että et ole tunnistanut sisaruksiasi tai vanhempiasi?			
Kuvaile vielä lyhyesti jokin erityisen silmiinpistävä tilanne ?			

## 8. Kuinka reagoit keskustelukumppaniisi?

	<i>Kyllä</i>	<i>Ei</i>
<i>HÄIRITSEEKÖ SINUA, JOS JOKU KATSOO SINUA PIDEMPÄÄN?</i>		
Häiritseekö sinua, jos keskustelukumppanisi ei katso sinua juuri lainkaan..		
Pystytkö "lukemaan" toisen kasvoilta hänen mielentilaansa?		
Onko katsekontakti keskustelussa sinulle tärkeää?		
Katsotko keskustellessasi suurimman osan aikaa keskustelukumppaniasi kasvoihin?		

## 9. Miten tunnistat henkilön?

	<i>Ensisijaisesti</i>	<i>Vähemmän</i>	<i>En lainkaan</i>
Intuitiivisesti henkilön kokonaisuudessaan			
<i>KASVOISTA</i>			
Spontaanisti ilman miettimistä			
<i>ÄÄNESTÄ</i>			
Ryhdistä, kävelystä			
<i>ERITYISISTÄ TUNNUSMERKEISTÄ, ESIM. ARVISTA, ONTUMISESTA, JNE.</i>			
Tyypillisestä kampaudesta, asusta, silmälasista, koruista, kengistä			
<i>MUISTA TUNNUSMERKEISTÄ, KUTEN:</i>			

## 10. Sinut on kutsuttu juhliin, joissa tulet tapaamaan vain muutamia tuttuja monien vieraiden ihmisten joukossa. Mitkä seuraavista ajatuksista voisivat olla sinun?

	<i>Kyllä</i>	<i>Ei</i>
Tämä on hyvä tilaisuus tutustua uusiin ihmisiin.		
Ehkä voisin yrittää välttää juhlat.		
Minun täytyy miettiä tarkkaan, ketkä tuttavistani voisivat olla siellä, jotta pystyn tunnistamaan heidät juhlien aikana.		
Niin isot juhlat eivät sovi minulle. Haluan ympärilleni mieluummin pienen, selkeän piirin.		
Olen mielelläni monien ihmisten keskellä.		
Minua pelottaa, että en huomaa henkilöä, joka minun pitäisi tuntea.		
Mieluiten menen juhliin hyvin aikaisin, jotta voin tarkkailla, keitä jälkeeni vielä saapuu.		
Muuta:		

## 11. Vielä muutamia meitä kiinnostavia kysymyksiä ...

*AVOIMET VASTAUKSET, KIRJOITA, MITÄ MIELEESI KUSSAKIN KOHDASSA TULEE!*

Uskaltaisitko noutaa juna-asemalta henkilön, jonka kasvot olet nähnyt aiemmin vain valokuvassa?
<i>TUNNISTAISITKO POLIITIKON TAI TUNNETUN ELOKUVANÄYTELJÄN, JOS HÄN KÄVELISI OHITSESI KADULLA TAI LENTOKENTÄLLÄ?</i>
Sinulle on joskus sanottu odottamatta: "Sinä et huomaa enää pieniä ihmisiä ?" (tai vastaavaa)
<i>TUNTUUKO SINUSTA VAIKEALTA LÖYTÄÄ RAVINTOLASSA PÖYTÄ, JOSSA YSTÄVÄSI ISTUVAT?</i>
Tuntuuko sinusta vaikealta ratkaista, oletko nähnyt jonkun jo kerran aikaisemmin.

Kiitos yhteistyöstä!

**Münsterin Yliopisto, Institut für Humangenetik, Vesaliusweg 12-14, D-48149 Münster**

Prof. Dr. med. Ingo Kennerknecht; Sebastian Wentzek, Tel: +49(0)251 8355412

E-Mail: [wentzek@uni-muenster.de](mailto:wentzek@uni-muenster.de) puh: 050-4717502

Institut für Humangenetik, Vesaliusweg 12 – 14, D-48149 Münster

männl.  weibl.  Alter: \_\_\_\_\_ Datum: \_\_\_\_\_

Vor- und Nachname: \_\_\_\_\_  
 Vollständige Anschrift: \_\_\_\_\_  
 Telefon \_\_\_\_\_ Handy \_\_\_\_\_ Email: \_\_\_\_\_

Bitte beurteilen Sie die folgenden Aussagen und kreuzen Sie die zutreffenden Felder an:

	<b>Trifft voll zu</b>	<b>Trifft zu</b>	<b>Bin unsicher</b>	<b>Trifft weniger zu</b>	<b>Trifft überhaupt nicht zu</b>
1 Ich kann Schauspieler in einem Film gut verfolgen					
2 Ich erkenne oft meine eigenen Freunde nicht					
3 Einige in meiner Familie haben Probleme mit Gesichtserkennung					
4 Leute machen mich oft darauf aufmerksam, dass ich sie nicht erkenne					
5 Ich kann sofort sagen, ob mir ein Gesicht bekannt vorkommt					
6 Ich brauche lange, um Leute zu erkennen					
7 Ich erkenne immer meine Familienmitglieder					
8 Ich finde leicht Dinge, die nicht am üblichen Platz liegen					
9 Ich erkenne die Leute meist an der Stimme					
10 Ich kann mir eine rote Rose sehr gut bildlich vorstellen					
11 Ich kann mir in Gedanken sehr gut meine Freunde vorstellen					
12 Ich kann berühmte Leute sofort erkennen					
13 Manchmal kommen mir Leute „bekannt“ vor, die ich noch nie gesehen habe					
14 Ich kann sofort sagen, ob es das Gesicht eines Mannes oder einer Frau ist					
15 Ich kann in einem Raum leicht rückwärts laufen					
16 Ich habe ein gutes Orientierungsgefühl					
17 Ich kann sagen, ob ein Gesicht attraktiv ist					
18 Emotionen / Stimmungen am Gesicht abzulesen fällt mir schwer					
19 Ich vermeide Treffen oder Partys, weil ich meine Bekannten übersehen könnte					
20 Ich habe Probleme, Leute, die ich nur kurz gesehen habe, am nächsten Tag wieder zuerkennen					
21 Ich habe viel Kontakt zu anderen Menschen					

## Scoring stencil

	Triff <u>voll</u> zu	Triff zu	Bin unsicher	Triff weniger zu	Triff <u>überhaupt nicht</u> zu
1 Ich kann Schauspieler in einem Film gut verfolgen	1	2	3	4	5
2 Ich erkenne oft meine eigenen Freunde nicht	5	4	3	2	1
3 Einige in meiner Familie haben Probleme mit Gesichtserkennung	5	4	3	2	1
4 Leute machen mich oft darauf aufmerksam, dass ich sie nicht erkenne	5	4	3	2	1
5 Ich kann sofort sagen, ob mir ein Gesicht bekannt vorkommt	1	2	3	4	5
6 Ich brauche lange, um Leute zu erkennen	5	4	3	2	1
7 Ich erkenne immer meine Familienmitglieder	1	2	3	4	5
8 Ich finde leicht Dinge, die nicht am üblichen Platz liegen	1	2	3	4	5
9 Ich erkenne die Leute meist an der Stimme	5	4	3	2	1
10 Ich kann mir eine rote Rose sehr gut bildlich vorstellen	1	2	3	4	5
11 Ich kann mir in Gedanken sehr gut meine Freunde vorstellen	1	2	3	4	5
12 Ich kann berühmte Leute sofort erkennen	1	2	3	4	5
13 Manchmal kommen mir Leute „bekannt“ vor, die ich noch nie gesehen habe	5	4	3	2	1
14 Ich kann sofort sagen, ob es das Gesicht eines Mannes oder einer Frau ist	1	2	3	4	5
15 Ich kann in einem Raum leicht rückwärts laufen	1	2	3	4	5
16 Ich habe ein gutes Orientierungsgefühl	5	4	3	2	1
17 Ich kann sagen, ob ein Gesicht attraktiv ist	1	2	3	4	5
18 Emotionen / Stimmungen am Gesicht abzulesen fällt mir schwer	5	4	3	2	1
19 Ich vermeide Treffen oder Partys, weil ich meine Bekannten übersehen könnte	5	4	3	2	1
20 Ich habe Probleme, Leute, die ich nur kurz gesehen habe, am nächsten Tag wieder zuerkennen	5	4	3	2	1
21 Ich habe viel Kontakt zu anderen Menschen	1	2	3	4	5

## Supplement 5

Vers english 12.06.06

Institute of Human Genetics  
Vesaliusweg 12 – 14  
D-48149 Münster  
Germany

Full Name: \_\_\_\_\_

Student Number: \_\_\_\_\_

Gender: \_\_\_\_\_ Age: \_\_\_\_\_

Full Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Mobile \_\_\_\_\_

Email: \_\_\_\_\_

Please give your opinion on each of the following statements by placing a cross to indicate if you

**strongly agree (SA), agree (A), are uncertain (U), disagree (D) or strongly disagree (SD).**

1 I can easily follow actors in a movie	SA	A	U	D	SD
2 I often do not recognize people who I know	SA	A	U	D	SD
3 Some of my family have problems in recognizing faces	SA	A	U	D	SD
4 People often tell me I do not recognize them	SA	A	U	D	SD
5 I can decide immediately if a face is familiar	SA	A	U	D	SD
6 It takes me a long time to recognize people	SA	A	U	D	SD
7 I always recognize family members	SA	A	U	D	SD
8 I can easily find things which are not in the right place	SA	A	U	D	SD
9 I mostly recognize people by their voices	SA	A	U	D	SD
10 I can easily form a mental picture of a red rose	SA	A	U	D	SD
11 I can easily form pictures of close friends in my mind	SA	A	U	D	SD
12 I recognize famous people immediately	SA	A	U	D	SD
13 I sometimes recognize people I do not know	SA	A	U	D	SD
14 I can decide immediately whether a face is male or female	SA	A	U	D	SD
15 I can easily walk backwards in a room	SA	A	U	D	SD
16 I get lost in new places	SA	A	U	D	SD
17 I can see if a face is attractive	SA	A	U	D	SD
18 I have problems to read emotions in a face	SA	A	U	D	SD
19 I avoid meetings as I might overlook familiar people	SA	A	U	D	SD
20 I do not recognize people the day after a brief meeting	SA	A	U	D	SD
21 I have much contact with other people	SA	A	U	D	SD

**Scoring stencil**

1 I can easily follow actors in a movie	SA1	A2	U3	D4	SD5
2 I often do not recognize people who I know	SA 5	A4	U3	D2	SD1
3 Some of my family have problems in recognizing faces	SA 5	A4	U3	D2	SD1
4 People often tell me I do not recognize them	SA 5	A4	U3	D2	SD1
5 I can decide immediately if a face is familiar	SA1	A2	U3	D4	SD5
6 It takes me a long time to recognize people	SA5	A4	U3	D2	SD1
7 I always recognize family members	SA1	A2	U3	D4	SD5
8 I can easily find things which are not in the right place	SA1	A2	U3	D4	SD5
9 I mostly recognize people by their voices	SA5	A4	U3	D2	SD1
10 I can easily form a mental picture of a red rose	SA1	A2	U3	D4	SD5
11 I can easily form pictures of close friends in my mind	SA1	A2	U3	D4	SD5
12 I recognize famous people immediately	SA1	A2	U3	D4	SD5
13 I sometimes recognize people I do not know	SA5	A4	U3	D2	SD1
14 I can decide immediately whether a face is male or female	SA1	A2	U3	D4	SD5
15 I can easily walk backwards in a room	SA1	A2	U3	D4	SD5
16 I get lost in new places	SA5	A4	U3	D2	SD1
17 I can see if a face is attractive	SA1	A2	U3	D4	SD5
18 I have problems to read emotions in a face	SA5	A4	U3	D2	SD1
19 I avoid meetings as I might overlook familiar people	SA5	A4	U3	D2	SD1
20 I do not recognize people the day after a brief meeting	SA5	A4	U3	D2	SD1
21 I have much contact with other people	SA1	A2	U3	D4	SD5

## Supplement 6

VersNetherlands 12.06.06

Voor- en familienamen: ..... Instituut voor Menselijke Genetica, Vesaliusweg 12 – 14, D-48149 Münster  
 Geslacht: M / V      Leeftijd: ..... Datum: .....

Adres:    Straat:.....      Postcode:.....Gemeente:.....

Telefoon ..... GSM ..... Email: .....

Geef aan in hoeverre je akkoord gaat met de volgende uitspraken door een kruisje in het juiste vakje:

	Volledig akkoord	Eerder akkoord	onzeker	Eerder niet akkoord	Helemaal niet akkoord
1 Ik kan de acteurs in een film gemakkelijk uit elkaar houden.					
2 Ik herken vaak mijn eigen vrienden niet.					
3 Sommige van mijn familieleden hebben problemen met het herkennen van gezichten.					
4 Mensen merken vaak op dat ik hen niet herken.					
5 Ik kan onmiddellijk zeggen of een gezicht mij bekend voorkomt.					
6 Ik doe er lang over om mensen te herkennen.					
7 Ik herken altijd mijn eigen familieleden.					
8 Ik vind gemakkelijk dingen terug die niet op de juiste plaats liggen.					
9 Ik herken mensen vooral aan hun stem.					
10 Ik kan mij gemakkelijk het beeld van een rode roos voor de geest halen.					
11 Ik kan mij in gedachten gemakkelijk goede vrienden voorstellen.					
12 Beroemde mensen herken ik onmiddellijk					
13 Soms komen mensen mij bekend voor zonder dat ik ze ooit gezien heb.					
14 Ik kan onmiddellijk zeggen of een gezicht een man of vrouw toebehoort.					
15 Ik kan in een kamer gemakkelijk achteruit stappen.					
16 Ik loop vaak verloren op nieuwe plaatsen.					
17 Ik kan zeggen of een gezicht aantrekkelijk is.					
18 Het aflezen van de stemming of emoties van een gezicht vind ik moeilijk.					
19 Ik vermijd bijeenkomsten waar ik mensen die ik goed ken over het hoofd zou kunnen zien.					
20 Ik heb problemen met het herkennen van mensen die ik de dag voordien slechts kort ontmoet heb.					
21 Ik heb veel contact met andere mensen.					



Instituto de Genética Humana, Vesaliusweg 12-14, D-48149 Münster

Data:

**Dados pessoais:**

Prenome e Sobrenome:

Sexo: masculino \_\_\_ feminino \_\_\_

Idade:

Endereço completo:

Número de telefone:

Celular:

Email:

**Origem dos seus pais:**

Mãe: européia (especifique!) \_\_\_\_\_, africana \_\_\_\_\_, Índia (tribo?) \_\_\_\_\_, Asiata (especifique!) \_\_\_\_\_, outra: \_\_\_\_\_

Pai: europeio (especifique!) \_\_\_\_\_, africano \_\_\_\_\_, Índio (tribo?) \_\_\_\_\_, Asiata (especifique!) \_\_\_\_\_, outro: \_\_\_\_\_

**Origem dos seus avós:**

Mãe materna: \_\_\_\_\_ Pai materno: \_\_\_\_\_

Mãe paterna: \_\_\_\_\_ Pai paterno: \_\_\_\_\_

**Por favor responda as seguintes perguntas dando de um a cinco pontos:**

	Totalmente verdade	Mas ou menos verdade	Não tenho certeza	Errado	Totalmente errado
1. Eu consigo seguir bem os atores/atrizes numa novela					
2. Muitas vezes eu não reconheço os meus próprios amigos					
3. Algumas pessoas na minha família tem dificuldade reconhecer rostos					
4. Muitos já reclamaram que eu não os reconheci					
5. Eu sei logo se eu conheço um rosto ou não					
6. Demoro muito para reconhecer as pessoas					
7. Eu sempre reconheço os meus familiares					
8. Acho facilmente coisas que não estão no lugar de sempre					
9. Geralmente eu reconheço as pessoas pelas suas vozes					
10. Eu consigo muito bem imaginar uma rosa vermelha					
11. Eu consigo bem imaginar na minha mente os rostos dos meus amigos					
12. Reconheço logo pessoas famosas					
13. As vezes pessoas que nunca ví antes me parecem conhecidas					
14. Sei logo se um rosto é de um homem ou de uma mulher					
15. Acho fácil correr para trás numa sala ou num corredor					
16. Nunca me perco num lugar desconhecido					
17. Sei logo se um rosto de uma pessoa é bonito ou não					
18. Não reconheço bem a emoção de um olhar (alegria, raiva, tristeza...)					
19. Não gosto de festa porque tenho medo de não reconhecer um amigo					
20. Tenho dificuldade reconhecer pessoas que ví só pouco tempo no dia antes					
21. Tenho muito contato com outras pessoas					

INSTITUTO DE GENETICA HUMANA, VESALIUSWEG 12 – 14, D 48149 Münster

NOMBRE Y APELLIDOS: \_\_\_\_\_ masculino  femenino  EDAD: \_\_\_\_\_ FECHA: \_\_\_\_\_

DIRECCION COMPLETA: \_\_\_\_\_

TELEFONO: \_\_\_\_\_ MOVIL \_\_\_\_\_ E-MAIL: \_\_\_\_\_

**Evalue por favor las siguientes afirmaciones y marque los casilleros que mejor correspondan a su situación:**

	Completament e cierto	Cierto	No estoy seguro/a	Poco cierto	Completamente incierto
1 Soy capaz de seguir bien a los actores en el transcurso de una película.					
2 Muy a menudo me es difícil reconocer a mis amigos.					
3. Algunos miembros de mi familia tienen dificultades reconocer los rostros de otras personas					
4. Muy a menudo otros me advierten que no los he reconocido.					
5. Puedo decidir enseguida si conozco un rostro o no					
6. Necesito bastante tiempo para reconocer a la gente.					
7. A los miembros de mi familia siempre los reconozco..					
8. Encuentro fácilmente cosas aunque estén fuera de su sitio.					
9. A las personas las reconozco casi siempre por su voz.					
10. Gráficamente puedo imaginarme muy bien una rosa roja.					
11. Puedo recrear en mi mente con facilidad la apariencia de mis amigos.					
12. Puedo reconocer inmediatamente a gente famosa					
13. De vez en cuando creo reconocer a gente aunque nunca la haya visto.					
14. Reconozco inmediatamente si se trata de un rostro femenino o masculino.					
15. En una sala soy capaz de ir atrás con facilidad.					
16. No me pierdo con facilidad en un lugar desconocido.					
17. Puedo decir si se trata de un rostro atractivo.					
18. No puedo averiguar con facilidad estados de ánimo mirando el rostro de una persona.					
19. Evito ir a reuniones o fiestas por temor de no reconocer a conocidos.					
20. Tengo problemas reconocer a gente que me fueron introducidos brevemente el día anterior..					
21. Tengo mucho contacto con otras personas.					

**Supplement 9**

Institutul de Genetica Umana, Vesaliusweg 12-14, D- 48149 Münster  
Masculin  Feminin  Varsta: \_\_\_\_\_ Data: \_\_\_\_\_

Nume si prenume: \_\_\_\_\_

Semnatura: \_\_\_\_\_

Telefon: \_\_\_\_\_ Mobil: \_\_\_\_\_ Email: \_\_\_\_\_

**Apreciati urmatoarele afirmatii si bifati gradul lor de frecventa:**

	Se intampla foarte des	Se intampla des	Nu sunt sigur	Se intampla rareori	Nu se intampla deloc
1 Pot sa urmaresc bine actorii intr-un film					
2 Mi se intampla des sa nu imi recunosc proprii prieteni					
3 Unii din familia mea au probleme in a recunoaste oamenii dupa fata					
4 Mi se intampla sa mi se atraga atentia asupra faptului ca nu recunosc oamenii					
5 Pot sa spun imediat daca o figura imi este cunoscuta sau nu					
6 Am nevoie de mult timp pentru a recunoaste oamenii					
7 Imi recunosc tot timpul membrii familiei					
8 Gasesc cu usurinta obiecte care nu sunt asezate la locul potrivit					
9 Criteriul dupa care recunosc cel mai des oamenii este cel al vocii					
10 Imi pot imagina cu usurinta un trandafir rosu					
11 Pot vizualiza in minte imaginea prietenilor mei					
12 Recunosc imediat oamenii celebri					
13 Mi se intampla ca anumite persoane pe care nu le-am intalnit niciodata sa imi para cunoscute					
14 Pot sa disting cu usurinta daca o figura este barbatesca sau femeiasca					
15 Pot sa merg cu spatele cu usurinta					
16 Am un simt al orientarii dezvoltat					
17 Pot sa spun daca o fata este atractiva					
18 Am dificultati de a vedea emotiile si dispozitia pe fata altcuiva					
19 Evit intalnirile, pentru ca risc sa nu-mi recunosc cunosintele					
20 Am probleme, oamenii pe care i-am vazut numai scurt, sa-i recunosc din nou in ziua urmatoare					
21 Am mult contact cu alti oameni					

Tibbi Genetik Anabilim Dalı, ESOGU Tıp Fakültesi Eskişehir-TR

## Supplement 10

Ad Soyad: \_\_\_\_\_ Erkek  Kadın  Yaş: \_\_\_\_\_ Tarih: \_\_\_\_\_

Eksiksiz Adres: \_\_\_\_\_

Telefon \_\_\_\_\_ Cep \_\_\_\_\_ Email: \_\_\_\_\_

Lütfen aşağıdaki durumları değerlendiriniz ve size uygun şekilde işaretleyiniz:

	Bana tamamen uyuyor	Bana uyuyor	Emin değilim	Bana biraz uyuyor	Bana hiç uymuyor
Bir filmde oyuncular çok iyi takip ederim					
Çoğunlukla kendi arkadaşlarımı tanımam					
Ailemdeki bazı kişilerin yüz tanımayla ilgili sorunları var					
İnsanlar, kendilerini tanımadığım konusunda sıklıkla yakınlar					
Bir yüzün tanıdık olup olmadığı konusunu hemen söyleyebilirim					
İnsanların tanıdık olup olmadıklarını bilebilmem için uzun zamana ihtiyacım olur					
Tüm aile bireylerini tanımam					
Normal yerlerinde olmayan şeyleri kolaylıkla bulurum					
İnsanları çoğunlukla seslerinden tanımam					
Kırmızı bir gültü hayalimde çok kolay canlandırabilirim (resmedebilirim)					
Arkadaşlarımı hayalimde çok iyi canlandırabilirim					
Ünlü insanları hemen tanımam					
Bazen hiç görmediğim insanlar bana çok tanıdık geliyor					
Bir yüzün kadına mı erkeğe mi ait olduğunu hemen söyleyebilirim					
Bir oda içinde kolaylıkla geri adım yürütürüm					
Yabancı bir çevrede kaybolmam					
Bir yüzün çekici olup olmadığını söyleyebilirim					
Bir başkasının yüzünden duygu ve düşüncelerini anlayamam					
Buluşma yada partileri arkadaşlarımı tanımadığımdan sevmem					
Kısa bir süre gördüğüm insanların ertesi gün tanımakta problemin var					
Başka insanlarla konuşmam fazladır					

Nama Lengkap : \_\_\_\_\_

## Supplement 11

Nomor Hp : -----  
 Alamat tempat tinggal : -----  
 Desa asal : -----  
 Kecamatan : -----  
 Kab. Kota : -----

Jawablah pertanyaan di bawah ini seadanya dengan memberi tanda silang ( X ) pada salah satu kolom Sangat Tepat, Tepat, Saya Ragukan, Kurang Tepat, atau Sangat Tidak Tepat.

	Sangat Tepat	Tepat	Saya Ragukan	Kurang Tepat	Sangat Tidak Tepat
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

## Supplement 12

Vor- und Nachname: \_\_\_\_\_

männl.

weibl.

Alter: \_\_\_\_\_

Datum: \_\_\_\_\_

الأسم و الشهرة

ذكر

انثى

العمر

التاريخ

Vollständige Anschrift:

العنوان بالتفصيل

Telefon \_\_\_\_\_

Handy \_\_\_\_\_

هاتف

موبايل

Email: \_\_\_\_\_

ايميل

Mein Heimatland: \_\_\_\_\_

Sprache meines Vaters: \_\_\_\_\_

البلد الأصلي

لغة الأب

Sprache meiner Mutter: \_\_\_\_\_

لغة الأم

Bitte beurteilen Sie die folgenden Aussagen und kreuzen Sie die zutreffenden Felder an:

الرجاء الاطلاع على الاسئلة في الجدول التالي ووضع اشارة ضرب جانب الاجابة الصحيحة:

غير صحيح	غير صحيح	غير متأكد	صحيح	صحيح جدا	
					1- أنا أستطيع متابعة الممثلين في الفيلم بشكل جيد
					2- لا أستطيع في كثير من الأحيان التعرف على اصدقائي
					3- في عائلتي من يصعب عليه التعرف على الوجود مرة ثانية
					4- الناس اعرفهم بسهولة في معظم الأحيان انني لم اعرف اليهم
					5- أستطيع وبشكل فوري القول اذا رايت وجها ما اني اعرفه
					6- أحتاج لوقت طويل للتعرف على الأشخاص
					7- أستطيع التعرف دائما على افراد عائلتي
					8- أستطيع ايجاد الاشياء بسهولة حتى ولو لم تكن في مكانها المألوف
					9- أستطيع التعرف على الأشخاص غالبا من اصواتهم
					10- أستطيع تخيل ورثة حورية حمراء بشكل ممتاز
					11- أستطيع تخيل اصدقائي بشكل جيد جدا
					12- أستطيع التعرف فوراً على الأشخاص المشهورين
					13- تصور احبانا معرفة أشخاص لم أرهم من قبل اطلاقا
					14- أستطيع فوراً القول ما اذا كان الوجه لرجل او لامرأة
					15- أستطيع في مكان ما المشي للخلف بسهولة
					16- عندي القدرة الكبيرة على التخيل
					17- أستطيع القول بأن وجها ما جميل ام لا
					18- لا أستطيع بسهولة قراءة الاحاسيس و الحالة النفسية او المزاج للشخص من وجهه
					19- أتحدث ملاحظة الاصدقاء خوفا من عدم التعرف اليهم
					20- عندي مشكلة في التعرف في اليوم التالي على أشخاص رايتهم لوقت قصير
					21- عندي اتصال كثير مع أشخاص كثيرين

## Supplément 13

Institut de Génétique Humaine, Vesaliusweg 12-14, D-48149 Münster, Allemagne

Nom et prénom: \_\_\_\_\_ Adresse complète

N° de Tél: \_\_\_\_\_ GSM: \_\_\_\_\_ Email: \_\_\_\_\_

Sexe: mascul.  féminin.  Âge: \_\_\_\_\_

Veillez estimer les déclarations suivantes et cocher les cases correspondantes:

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

	Correspo nd	Corres pond	Hésitant	Ne correspond pas vraiment	Ne correspon
1 Je peux bien visualiser un acteur durant un film et le reconnaître à travers toutes ses scènes.					
2 Il m'arrive souvent de ne pas reconnaître mes propres amis					
3 Quelques membres de ma famille ont du mal à reconnaître un visage familial.					
4 Souvent des personnes me font la remarque de ne pas les reconnaître.					
5 Je reconnais facilement un visage familial.					
6 Ca me nécessite un bon moment pour reconnaître des personnes connues.					
7 Je reconnais toujours et sans problème les membres de ma famille.					
8 Quand les objets ne sont pas à leur place habituelle, je les retrouve facilement.					
9 Souvent je reconnais les personnes à leur voix.					
10 Je peux facilement imaginer une rose rouge.					
11 Je peux facilement imaginer les visages de mes amis.					
12 Je reconnais immédiatement les visages des personnes célèbres.					
13 Ça m'arrive de lier un visage inconnu à un visage familial.					
14 Je reconnais immédiatement le visage d'un homme à celui d'une femme.					
15 Je peux facilement marcher à reculons dans une pièce.					
16 Je <b>ne</b> m'égare <b>jamais</b> dans un lieu inconnu.					
17 Je peux dire si un visage est séduisant.					
18 Je <b>ne</b> peux <b>pas</b> bien lire des émotions/humeurs sur un visage					
19 De peur de ne pas reconnaître des visages familiaux, j'évite les lieux de rencontre.					
20 J'ai du mal à reconnaître des personnes que j'ai vues brièvement la veille.					
21 Je suis une personne sociable.					

**Supplement 14**

姓名：\_\_\_\_\_

学号：\_\_\_\_\_系别：\_\_\_\_\_专业：\_\_\_\_\_

性别：\_\_\_\_\_年龄：\_\_\_\_\_

详细地址：\_\_\_\_\_

固定电话：\_\_\_\_\_移动电话：\_\_\_\_\_

电子邮件：\_\_\_\_\_

请您回答下列21个问题。每一个题目后都有五种选择——完全符合、符合、不确定、不符合、完全不符合，请您根据自己的实际情况，在相应的空格内划“√”。

	完全符合	符合	不确定	不符合	完全不符合
1我在一部电影里能很容易分辨出剧中人物。					
2我经常认不出我所认识的人。					
3我的一些家族成员在分辨面孔方面存在问题。					
4有人经常告诉我，我认不出他们。					
5我能立即确认一张面孔是否是我所熟悉的。					
6我要花费很长的时间才能认出一个人。					
7我总是能认出家庭成员。					
8我能很容易找到放错位置的东西。					
9我主要通过人的声音来辨别人。					
10我很容易在我的头脑中形成一枝红玫瑰的图片。					
11我很容易在我的头脑里形成我好朋友的形象。					
12我能立即认出名人。					
13我有时会认错人。					
14我能立即确认一张面孔是男性还是女性。					
15我能很容易地在一个房间里倒走。					
16我会在新地方迷路。					
17我能判断一张面孔是否具有吸引力。					
18我在辨别面部表情方面存在问题。					
19我不愿意参加会议，因为我在人群中认不出我熟悉的人					
20在碰头会的第二天，我就认不出参加会议的人了。					
21我的交际很广。					

Translated from English and German by Wang Hui, Changchun Taxation College