INSTITUT FÜR PSYCHOLOGIE
History of the Institute of Psychology

Research Topics

- Memory, Perception (Herrmann Ebbinghaus) 1880
- Tone Psychology, Methodology, Applied Psychology (Carl Stumpf) 1900
- Gestalt Psychology (Wolfgang Köhler, Max Wertheimer) 1920
- Topological and Developmental Psychology (Kurt Lewin) 1935
- Pedagogical Psychology and Typology (Kroh) 1950
- Gestalt Psychology, Personality Psychology and Twin Studies (Gottschaldt) 1970
- Cognitive, Mathematical Psychology, Psychophysics, Evolutionary Psychology (Klix) 2000

Facilities

- 3 rooms, small apparatus collection
- 10 rooms, apparatus collection, phonogramm archive
- 25 (1921) – 41 (1935) rooms, best equipped psychological institute worldwide, seated in Emperor's Palace
- less than 40 rooms; destroyed 1945
- 41 rooms, best equipped psychological institute of both German states
- 60 rooms, best equipped psychological institute of East Germany
- more than 200 rooms, 10 laboratories
Institute für Psychologie
Facts and Figures

Staff

14 Professorships
  einschl. 1 Heisenberg Professor,
  2 Junior Professors
2 Emmy-Noether Nachwuchsgruppen
4 S-Professuren (Max-Planck-Institute)

28 Wissenschaftliche Mitarbeiter
  (Haushalt)
42 Wissenschaftliche Mitarbeiter
  (Drittmittel)

16 Technische/Administrative Mitarbeiter

20 student assistants (regular budget)
56 student assistants (third-party funded)

Facilities

3 919 m²

10 labs

- computer pool (25 places)
  + computer facilities at ESZ

4 lecture rooms + general rooms at ESZ

- mechanical shop floor

- library, integrated into the general library at ESZ

- test library (inhouse)

- outpatient clinic

- center for psychotherapy (postgraduate courses)
## Institute of Psychology Professorships

<table>
<thead>
<tr>
<th>Area</th>
<th>Professor</th>
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<tbody>
<tr>
<td>Biological Psychology/ Psychophysiology</td>
<td>Werner Sommer</td>
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<tr>
<td>Clinical Psychology</td>
<td>Norbert Kathmann</td>
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<tr>
<td>Clinical Gerontopsychology (JP)</td>
<td>Katja Werheid</td>
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<tr>
<td>Cognitive Psychology</td>
<td>Elke van der Meer</td>
</tr>
<tr>
<td>Developmental /Pedagogical Psychology</td>
<td>Denis Gerstorf</td>
</tr>
<tr>
<td>Engineering Psychology / Cognitive Ergonomics</td>
<td>Hartmut Wandke</td>
</tr>
<tr>
<td>General Psychology</td>
<td>Peter Frensch / Torsten Schubert</td>
</tr>
<tr>
<td>Neuro-Cognitive Psychology (Heisenberg)</td>
<td>Rasha Abdel-Rahman</td>
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<tr>
<td>Social- and Organizational Psychology</td>
<td>Ursula Hess</td>
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<tr>
<td>Personality Psychology</td>
<td>Jens Asendorpf</td>
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<tr>
<td>Psychological Diagnostics</td>
<td>Matthias Ziegler</td>
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<tr>
<td>Psychological Research Methods</td>
<td>Oliver Lüdtke</td>
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<tr>
<td>Psychotherapy and Somatopsychology</td>
<td>Thomas Fydrich</td>
</tr>
<tr>
<td>Work Psychology (JP)</td>
<td>Annekatrin Hoppe</td>
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</tbody>
</table>
Institute of Psychology
Facts and Figures

Third Party Funding

- DFG
- BMBF
- Sonstige


Funding amounts for each year:
- 2006: 500.000
- 2007: 1.000.000
- 2008: 1.500.000
- 2009: 2.000.000
- 2010: 2.500.000
- 2011: 2.000.000
- 2012: 2.500.000

Legend:
- Blue: DFG
- Red: BMBF
- Green: Sonstige
Institute of Psychology
Students (n=772)

BSc. (274) incl. minor

Diploma (498)

terms at university
**Methods**

- **Electroencephalogram (EEG)**
  incl. EEG-Baby-Lab; ERPs, time-frequency analyses, connectivity analyses

- **Peripheral physiology**
  heart rate, SCR, EMG

- **MRI**
  structural, activity, connectivity analyses, DTI

- **Eye Tracking / Pupillometrics**
  gaze fixation, saccades

- **Psychophysics / Psychometric Measures**
  processing speed, accuracy, gestures

- **Computational modeling**
Research Topics

Cognitive conflicts, action regulation and cognitive training
(DFG Schubert, Frensch, Strobach; VW Foundation)

- Processes of executive control, attention and non-conscious information processing
- Functional neuroanatomy of executive functions (fMRI)
- Training- and age-related plasticity of cognitive functions

Concept acquisition and knowledge change
(Cluster of Excellence BWG: Schubert, Frensch, Gaschler, Scholz (Biology); DFG)

- Acquisition, application and change of conceptual mathematical and biological knowledge

Learning, instruction and coding of actions (DFG Wenke, Frensch)

- Implementation of instructions for action control
- Agency and the acquisition of action-effect couplings in action control

Lab Facilities and Methods

Behavioral analyses
processing speed
accuracy
postural responses

Eye Tracking
gaze fixation, saccades

Computational modeling
processing times, errors

fMRI
BOLD response
activation patterns
connectivity analyses
Research Topics

- Mathematical cognition: Cerebral correlates and sources of individual differences (intelligence, strategies) (BMBF)
- Impact of chronotype and time perspective on cognitive abilities over the life-span (BMBF)
- Social event knowledge: Understanding deficits (DFG)
- Knowledge acquisition and sleep in infants, young children, and adults (DFG)
- Brain functions and written language acquisition in school children (MPI-CBS, DFG)
- Perception and appraisal of urban environment; impact on human health (DFG; ECAV)

Lab Facilities

Behavioral Methods
- processing speed
- accuracy, gestures

Eye Tracking
- processing strategies

Pupillometrics
- cognitive resource allocation

EEG-Baby-Lab
- time-frequency analysis
- source analysis

fMRI
- activation patterns
- structural scans
Research Topics

Individual differences in processing emotional facial expressions (W. Sommer & O. Wilhelm; DFG)

The timeline of reading (W. Sommer & R. Kliegl; DFG)

Dynamical modeling of complex networks from EEG (W. Sommer, J. Kurths & G. Ivanova; DFG)

Implicit activation of memory and actions: Automatic or capacity dependent? (C. Lehle; DFG)

Neural underpinnings of individual differences in cognition (W. Sommer, C. Zhou; DAAD)

Lab Facilities

Electroencephalogramm (EEG)

Eye tracking

Peripheral physiology
Research Topics

Language production
- Dynamic and flexible aspects of semantic processes during lexical access
- Time course and microstructure of the language production and comprehension system
- Influence of affective stimulation and mood on lexicalization

Top-down influences on perception
- How are basic perceptual processes affected by higher-level processes, e.g., semantic knowledge and the structure of our language?

Organization of the semantic system
- Acquisition, storage and use of meaning
- Structure and organization of the semantic system

Lab Facilities and Research Methods

Event-related brain potential (ERP) technique
We employ behavioral and electrophysiological measures. To investigate the organization and time course of core cognitive processes and the interplay between these processes.
Topics

Numerical Cognition
- Neuro-functional & cognitive basis of mathematical reasoning
- Impact of the 'number sense' on mathematical capacities
- Link between numbers and space
- Development of mental magnitude representation during childhood
- Developmental Dyscalculia

Research Methods

Behavioral
- Reaction time & accuracy
- Psychophysics
- Psychometric Measures

Neural level (fMRI)
- GLM
- MVPA (Decoding)
- Connectivity
- DTI
Emmy Noether Group  
Dr. Martin Rolfs  
Active Vision & Cognition

**Research Topics**

**Attentional processes in active vision**
- Dynamics of visual attention during unconstrained eye-head gaze shifts
- Modeling of neural & behavioral data

**Visuomotor learning and plasticity**
- Control and adaptation of goal-directed movements and their impact on perception

**Visual cognition**
- Foundation of the perception of causality, animacy, and intentionality in visual processing

**Lab Facilities**

**Combined eye and motion tracking**

**Ultrafast whole-field visual stimulation**

**Psychophysics**

![Graph showing retinotopic function](image)
Bereich Psychometrie

Forschungsthemen

Simulationsstudien
Evaluation von statistischen Verfahren (z.B. Mehrebenenanalyse, Faktorenmodelle)

Methodik von Schulleistungsstudien
Modellierung von Schülerkompetenzen, Behandlung fehlender Werte, Erfassung von Lernumwelten

Methodik von Persönlichkeitsstudien
Modellierung von Persönlichkeitseigenschaften, Wachstumsmodelle, Einfluss absichtlicher Verfälschung, Modellieren des Umwelteinflusses

Diagnostik

Methodenlehre
Research Topics

**Abilities and Personality Traits in Learning across the lifespan**
- Impact of fluid intelligence and Big 5 traits on learning and performance
- Interaction effects between these human characteristics
- Openness to experience as important influence variable

**Faking in Personality Assessment**
- Modelling the faking process
- Modelling faking impact

**Person x Environment Interaction**
- Measuring situational characteristics
- Modeling the interaction between situation perception and personality

**Test development**
- Generalizability theory
- Test length

Lab Facilities

**Computer based psychometric testing**

**Test library**

**Experience sampling**
Multilevel Modeling in Psychological Research

- Estimation and interpretation of contextual effects in multilevel models (Funding: DFG)
- Application of Bayesian techniques (e.g. Social Relations Model)

Methodology of Large-Scale Assessments

- Assessment of student achievement
- Missing data analysis (e.g., Multiple Imputation)
- Estimation of causal effects with non-experimental data (e.g., Propensity Score Matching)
Work- Engineering- and Organisational Psychology

Methods

Field Studies
- in the work setting
- Experience sampling methodology/diary studies
- longitudinal designs for investigating long term effects of work characteristics on well-being

Psychophysiology
Heart rate, SCR, EMG, Cortisol

Simulations
Socially Augmented Microworld
Research Topics

Occupational Health Psychology (OHP)
- Stressors- resources- strain relationships in the work setting
- Occupational safety and health interventions/ Worksite health promotion
- Work analysis and work design

Immigrant and low wage workers
- Psychosocial working conditions and health low wage workers
- Ethnic health disparities
- Cultural diversity in teams

Current Projects

Looking at the bright side of work: A diary study
Day level resource-oriented interventions to improve personal resources, work engagement and well-being
(Project partners: A. Michel, Universität Heidelberg, D. O’Shea, Limerick University/ Ireland, G. Gonzalez, Guelph University/Canada, A. Steidle, Universität Hohenheim)

Labor migration of Spanish professionals to Germany
(Project partners: K. Fujishiro, National Institute for Occupational Health, USA)
Research Topics

Human Machine Systems (HMI)

- Function allocation and automation
- Humans as operators in vs. as developers of HMIs
  (Funding: DFG Research Trainig Group prometei)

Ambient Assisted Living

- Social support of elderly people mediated by information technology
- Transgenerational User Interface Design
  (Funding: BMBF AAL Programme)

Sustainable Usability Engineering

- Methods and tools for early stages in Human Centred Design
- Integration of design stages by usability principles
  (Funding: artop GmbH)

Lab Facilities

Experimental Display for Supervisory Control

Socially Augmented Microworld
A wrinkle in time: The perception of expressions in the elderly

- The effect of wrinkles and facial folds on the perception of emotion expressions
  (Funding: NIA Research Grant)

Empathic reactions to the elderly

- Mimicry and Emotional contagion when observing the elderly
  (Funding: DFG Research Grant)

Conflict at the workplace

- Stress and emotion regulation in a conflictual dyadic work setting
  (Funding: Interdisziplinäres Wolfgang Köhler-Zentrum)

Emotion comprehension and subjective wellbeing

- A collaborative study with the University of Crete
  (Funding: DAAD)

Psychophysiology lab (EMG, HRV, IMP, EDA, BP, skin temp., Eye-tracker)
**Lifespan Development**

**Methods**

- high-definition video observation lab with computer-assisted coding facilities
- psychophysiology lab (EMG, HRV, IMP, EDA, BP, skin temp., Eye-tracker)
- in-situ assessments of everyday life
  - contact people several times a day for an entire week
  - physiological markers (e.g., stress)
- applying longitudinal methods to large panel studies
  - Germany: SocioEconomic Panel, Berlin Aging Studies I & II
  - US: Health & Retirement Study
  - UK: British Household Panel
Research Topics

Empathic reactions to the elderly
- Individual differences in young people’s empathic reactions to emotional expressions of the elderly
  (Funding: DFG Research Grant)

Reassessment in the LOGIC Study
- Adjustment at age 29 as predicted from personality at ages 4-6 and later
- 25-year German longitudinal study
  (Funding: Thyssen foundation)

Personality and Acculturation
- Longitudinal acculturation of exchange students to guest culture (GER, JAP, US)
- Longitudinal acculturation of immigrants to host culture in Greece
  (with University of Athens)

Lab Facilities

High-Definition Video Observation Lab with Computer-Assisted Coding Facilities
Research Topics

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Lab Facilities

Psychophysiology lab (EMG, HRV, IMP, EDA, BP, skin temp., Eye-tracker)
Research Topics

Differential Development across Adulthood

late-life change
• How is late-life well-being shaped by disease and impending death?

interrelations in behavioral change
• What are the developmental dynamics between well-being and cognitive functioning?

contextual effects on development
• How is well-being affected by characteristics of one’s partner?

daily life dynamics
• How do older adults master the challenges of everyday life?

Methods

applying longitudinal methods to large-scale panel studies
• Germany: SocioEconomic Panel, Berlin Aging Studies I & II
• US: Health & Retirement Study
• UK: British Household Panel

in-situ assessments of everyday life
• contact people several times a day for an entire week

physiological markers
• stress: cortisol
Welche (neuro-)psychologischen und –biologischen Veränderungen liegen Zwängen und Ängsten zugrunde?

Lässt sich “Vulnerabilität” für solche Störungen identifizieren?

Was verändert sich im Gehirn und im Verhalten unter Therapie?

Wie effektiv sind bestimmte Therapieformen?

Welche speziellen Probleme treten bei der Versorgung von Migranten auf?

Neuropsychologische Veränderungen im Alter

Psychologische Interventionen bei Demenz und Schlafanfall

Wir benutzen:
EEG, (f)MRT, SCR, HR, Okulographie, Reaktionszeiten Psychometrie, Computational modeling (Forschung)
Kognitive Verhaltenstherapie (Behandlung)
**Clinical Psychology / Outpatient Care Unit**
Prof. Dr. Norbert Kathmann

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**Research Topics**

**Cognitive-affective mechanisms and brain dysfunctions in mental disease**
- Performance monitoring
- Reward-based learning
- Decision making
- Volitional action
- Procedural learning
- Emotion regulation
- Agency
- Genetics

(Funding: DFG/BMBF/VW Foundation)

**Treatment of anxiety disorders**
- Evaluation of treatment components
- Development of guidelines

**Patient groups**
- Obsessive-compulsive disorder
- Panic disorder
- Schizophrenia

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**Methods and Lab Facilities**

**Electroencephalography (EEG)**
- Event-related brain potentials
- Time-frequency analysis
- Source analysis

**Oculography**
- (Anti-) Saccades
- Smooth-pursuit eye movements

**Functional-/ Magnetic Resonance Imaging (MRI & fMRI)**
- BOLD Response (GLM) analysis
- Connectivity analysis
- Resting State Analysis
- Morphometry
- Simultaneous EEG/fMRI

**Transcranial magnetic stimulation (TMS)**
Psychotherapy and Somatopsychology
Prof. Dr. Thomas Fydrich

Research Topics

Disorder-related research
- Social Phobia
- Personality Disorders
- Obsessive-Compulsive Disorder in children
- Depression and motivation
- Panic Disorder and Agoraphobia

Quality assurance and evaluation of psychotherapeutic care

Social support and health

Homework assignments in psychotherapy

Mental health and culture
- Mental health care utilization and migration
- Transcultural aspects of mental disorders and psychotherapy

Staff / Facilities

Staff
- Dipl.-Psych. Kirsten Baschin
- Dr. Andrea Ertle
- PD Dr. Lydia Fehm
- Dr. Ulrike von Lersner
- Dipl.-Psych. Dominik Ülsmann

ZPHU – Psychotherapy Training and Treatment Center
Berlin-Mitte
Research Topics

Affective processing in elderly people
- Psychophysiological experiments
- Emotion-memory interaction
- Structural parallelisms in language
  (Funding: DFG, BMBF, Languages of Emotion, Sonnenfeld Found.)

Psychological Interventions the Elderly
- Alzheimer disease/Mild Cognitive Impairment
- Stroke patients
  (Funding: BMG, Humor hilft Heilen)

Post-stroke depression
- Pathogenesis
- Psychosocial risk factors
- Neurobiological risk factors
  (Funding: HU Berlin)

Lab Facilities

EEG recording

Behavioral experiments

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<td>Prime</td>
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