

JAHRESBERICHT 2012

Allgemeine Psychologie und Methodologie



**Fakultät für Psychologie
Universität Basel**

JAHRESBERICHT 2012

Allgemeine Psychologie und Methodologie

Mitarbeiterinnen und Mitarbeiter der Abteilung (per 31.12.2012)

<i>Abteilungsleitung</i>	Prof. Dr. Klaus Opwis
<i>Sekretariat</i>	Dipl. Psych. Natalia Adamski
<i>Wissenschaftliche Mitarbeitende</i>	PD Dr. Iris-Katharina Penner (BrainStim-Projekt) Dr. Markus Stöcklin
<i>Assistierende</i>	Dipl. Psych. Natalia Adamski (BrainStim-Projekt) M.Sc. Silvia Heinz M.Sc. Martina Hubacher M.Sc. Markus Hug (NZZ-Projekt) M.Sc. Elisa Mekler M.Sc. Sébastien Orsini M.Sc. Nadine Oser (UKBB-Projekt) M.Sc. Mirjam Seckler (ZKB-Projekt)
<i>Hilfsassistierende</i>	B.Sc. Matthias Adler Florian Brühlmann Timon Elmer B.Sc. Sebastian Hunziker Patrick Kessler Julia Kreiliger B.Sc. Sharon Steinemann B.Sc. Dominic Zwahlen
<i>Lehraufträge</i>	Dr. Javier Bargas-Avila (HS 2012) Prof. Dr. Andreas Gold (FS 2012) Christian Hübscher (FS 2012) Dr. Stefan Leuthold (HS 2012) Prof. Dr. Christian Rösler (FS 2012, HS 2012) Prof. Dr. Hans Spada (FS 2012)

Kurze Chronologie des Jahres 2012

Kurzer chronologisch geordneter Gesamtüberblick über bemerkenswerte Vorkommnisse im Jahr 2012 aus Sicht der Abteilung für Allgemeine Psychologie und Methodologie

Januar 2012

Die *Schweizerische National-Versicherungs-Gesellschaft AG* verlängert die bestehende Projektzusammenarbeit mit Javier Bargas-Avila, Klaus Opwis und Sébastien Orsini im Bereich der Mensch-Maschine-Interaktion (Förderung für 12 Monate mit rund CHF 95'000).

Die *Zürcher Kantonalbank (ZKB)* verlängert die bestehende Projektzusammenarbeit mit Klaus Opwis und Mirjam Seckler im Bereich der Mensch-Maschine-Interaktion (Förderung für 6 Monate mit rund CHF 47'500).

Die *Stefanie und Wolfgang Baumann Stiftung* bewilligt ein Promotionsstipendium für Milena Sotirova-Kohli zum Thema *Collective unconscious (archetypal) memory* (Förderung für 12 Monate mit CHF 20'000).

Februar 2012

Die *Neue Zürcher Zeitung (NZZ)* verlängert die bestehende Projektzusammenarbeit mit Klaus Opwis und Markus Hug im Bereich der Mensch-Maschine-Interaktion (Förderung für 12 Monate mit rund CHF 90'000).

Mai 2012

Der *Schweizerische Nationalfonds (SNF)* bewilligt Alexandre Tuch ein einjähriges Stipendium für angehende Forschende an der Universität Kopenhagen zum Thema *Interacting with technology: How do pragmatic and hedonic attributes affect user experience?* (Förderung für 12 Monate mit rund CHF 75'000).

Juli 2012

Die *Zürcher Kantonalbank (ZKB)* verlängert die bestehende Projektzusammenarbeit mit Klaus Opwis und Mirjam Seckler im Bereich der Mensch-Maschine-Interaktion (Förderung für 6 Monate mit rund CHF 47'500).

September 2012

Die *Schweizerische Multiple Sklerose Gesellschaft* bewilligt Frau PD Dr. Iris-Katharina Penner für das Projekt *Cognitive training in juvenile MS and its influence on cognitive profile and psychosocial aspects (fatigue, depression, quality of life)* eine finanzielle Unterstützung in Höhe von CHF 80'000 (Mitantragsteller: Prof. Dr. Peter Weber, UKBB, und Prof. Dr. Klaus Opwis).

Öffentlichkeitsarbeit

Organisation der öffentlichen Vortragsreihe *Hirnforschung im Dialog*, in Zusammenarbeit mit der *Stefanie und Wolfgang Baumann Stiftung*, zum Thema *Willensfreiheit und rechtliche Schuld: Verantwortung, Schuld, Strafe und das Menschenbild der Hirnforschung* mit zwei Vorträgen im Frühlingssemester 2012 (Professor Dr. Reinhard Merkel, Hamburg, 26. April 2012, und Professor Dr. Hans-Ludwig Kröber, Berlin, 24. Mai 2012) und einem Vortrag im Herbstsemester 2012 (Professor Dr. Verena Kast, 8. November 2012).

Personalia in 2012

August 2012

Alexandre Tuch beginnt sein Auslandsstipendium bei Professor Kaspar Hornbæk, Department of Computer Science, an der Universität Kopenhagen.

September 2012

Pasquale Calabrese beendet seine Tätigkeit als wissenschaftlicher Mitarbeiter in der Abteilung.

Oktober 2012

Florian Brühlmann beginnt seine Tätigkeit als Hilfsassistent in der Abteilung.

Dezember 2012

Sébastien Orsini beendet seine Assistenzstelle und wechselt auf eine Stelle in der Privatwirtschaft (National).

Nadine Oser beendet ihre Tätigkeit als DM-finanzierte Forschungsassistentin und wechselt an das Universitäre Kinder Spital beider Basel (UKBB).

Timon Elmer und Julia Kreiliger beenden ihre Tätigkeit als Hilfsassistenten in der Abteilung.

Drittmittel

2012 konnten Drittmittel im Umfang von rund CHF 350'000 erfolgreich eingeworben werden, die insbesondere zur Finanzierung zusätzlicher Personalanstellungen (Lehrbeauftragte, Assistierende, Doktorierende, Hilfsassistenten) genutzt wurden.

Lehrveranstaltungen

Frühlingssemester 2012

Bachelorstudium

Denken, Problemlösen, Expertise (Opwis)

Forschungsmethoden und Statistik II (Propädeutische Vorlesung mit Übung; Stöcklin & Opwis)

Kognitive Neurowissenschaften (Penner)

Emotion, Motivation, Kommunikation (Spada, LA)

Lernschwierigkeiten: Ursachen, Diagnose, Prävention und Intervention (Gold, LA)

Empirisch-Experimentelles Projektseminar (Heinz & Hubacher)

Wie schreibe ich eine Bachelorarbeit in der Mensch Maschine Interaktion?

(Heinz, Mekler, Opwis & Orsini)

Wie schreibe ich eine Bachelorarbeit in der kognitiven Neuropsychologie und

Entwicklungsneurologie? (Hubacher, Opwis & Penner)

Einführung in die Analytische Psychologie C.G. Jung (Roesler, LA)

Praxis der analytischen Psychotherapie C.G. Jungs: Anwendung und Vertiefungen (Roesler, LA)

Masterstudium

Aktuelle Forschungsthemen der Mensch-Maschine Interaktion (Orsini)

Konzeption und Design von User Interfaces (Hübscher, LA)

Praxis der empirischen Forschung: Komplexe Varianzanalytische Designs (Stöcklin)

E-Prime: Computerbasierte experimentelle Psychologie (Stöcklin)

Nicht-apparative Methoden und Verfahren der Neuropsychologie über die Lebensspanne

(Calabrese & Penner)

Masterprojekte

Kognitive Neuropsychologie und Entwicklungsneurologie (Opwis/Penner)

Mensch Maschine Interaktion (Heinz/Mekler/Opwis/Orsini)

Doktoratskolloquium am 15. Februar 2012

Evaluation of cognitive rehabilitation in early RRMS- Einblicke in die laufende Studie (Martina Hubacher).

Archetypal (Collective Unconscious) Memory: Empirical Studies of the Associations between Archetypal Symbols and Their Meanings (Milena Kohli).

Das Arbeitsleben eines Drittmitteldoktoranden (Markus Hug).

Kognition und funktionelle Reorganisation bei Kindern mit Rolandoepilepsie (Nadine Oser).

Herbstsemester 2012

Bachelorstudium

Kognitive Psychologie I: Wahrnehmung, Gedächtnis (Propädeutische Vorlesung; Opwis)

Forschungsmethoden & Statistik I (Propädeutische Vorlesung mit Übung; Stöcklin & Opwis)

Einführung in die MMI (Bargas-Avila)
Forschungsmethoden & Statistik III (Stöcklin & Opwis)
Empirisch-Experimentelles Projektseminar (Heinz, Hubacher, Mekler)
Wie schreibe ich eine Bachelorarbeit in der Mensch Maschine Interaktion?
(Heinz, Mekler, Opwis & Orsini)
Wie schreibe ich eine Bachelorarbeit in der kognitiven Neuropsychologie und
Entwicklungsneurologie? (Hubacher, Opwis & Penner)
Einführung in die Analytische Psychologie C.G. Jung (Roesler, LA)
Praxis der analytischen Psychotherapie C.G. Jungs: Anwendung und Vertiefungen (Roesler, LA)

Masterstudium

Wahrnehmungsforschung aus kognitions- und entwicklungspsychologischer Sicht (Opwis)
Experimentelle Ansätze in der Neuropsychologie über die Lebensspanne (Penner)
Online Forschung in der Mensch-Maschine Interaktion (Orsini)
Theoretische Grundlagen und Modelle der Mensch-Maschine-Interaktion (Leuthold)
Aktuelle Forschungsthemen der Mensch-Maschine Interaktion (Heinz, Mekler & Orsini)
Eye-Tracking Methoden in der Mensch-Maschine Interaktion (Heinz & Mekler)
Praxis der empirischen Forschung: Strukturgleichungsmodelle (Stöcklin)

Masterprojekte

Kognitive Neuropsychologie und Entwicklungsneurologie (Opwis/Penner)
Mensch Maschine Interaktion (Heinz/Mekler/Opwis/Orsini)

Doktoratskolloquium am 19. September 2012

Gamification: Eine empirische Analyse (Elisa Mekler)
Integration formeller Ausbildung und informelles Lernen (Roland Hübscher)
Archetypal memory (collective unconscious): Empirical Studies of the association between
archetypal symbols and their meaning (Milena Sotirova-Kohli)
Metakognitives und alltagsrelevantes Training für MS-Patienten (Lana Pöttgen)

Master of Advanced Studies in Human Computer Interaction Design (MAS-HCID)

Psychologie: Einführung in die Kognitive Psychologie (Opwis & Roth)

Lehrauftrag an der Universität Fribourg

Allgemeine Psychologie I (Opwis)
Methodenlehre I (Opwis)

Publikationen in 2012

Originalarbeiten / Artikel in wissenschaftlichen Zeitschriften / Proceedings mit Peer-Review¹

Bechtel, N., Kobel, M., Penner, I.-K., Specht, K., Klarhöfer, M., Scheffler, K., Opwis, K., Schmitt-Mechleke, T., Capone, A. & Weber, P. (2012). Attention deficit/ hyperactivity disorder in childhood epilepsy: A neuropsychological and fMRI study. *Epilepsia*, 53, 325-333.²

Purpose: Children with epilepsy have a significant risk for attention-deficit/hyperactivity disorder (ADHD), which is often accompanied by deficits in working memory performance. However, it is not yet clear whether there are specific differences in the underlying mechanisms of working memory capability between children with epilepsy-related ADHD and those with developmental ADHD. There is evidence that methylphenidate can improve the behavioral difficulties in children with developmental ADHD. Whether this medication has the same effect on ADHD symptoms in patients with epilepsy is not yet well understood. The aim of the present study is, therefore, to evaluate whether boys with epilepsy-related ADHD and developmental ADHD share a common behavioral, pharmacoresponsive, and neurofunctional pathophysiology.

Methods: Seventeen boys with diagnosed combined epilepsy/ADHD, 15 boys with developmental ADHD, and 15 healthy controls (aged 8–14 years) performed on working memory tasks (N-back) while brain activation was recorded using functional magnetic resonance imaging. Each patient was tested twice: once after the intake of methylphenidate and once without in a counterbalanced order.

Key Findings: On a behavioral level, we show that boys with epilepsy-related ADHD as well as those with developmental ADHD performed similarly poorly on tasks with high cognitive load when compared to healthy controls, and that intake of methylphenidate improved performance almost to normal levels in both ADHD groups. On the functional level, both patient groups showed similar reductions of activation in all relevant parts of the functional network of working memory when compared to controls. Of interest, intake of methylphenidate did not significantly alter this activity pattern.

Significance: Our data show strong similarities between epilepsy-related and developmental ADHD on the behavioral, pharmacoresponsive, and neural level, favoring the view that ADHD with and without epilepsy shares a common underlying neurobehavioral pathophysiology.

¹ Nachfolgende Angaben zu den einzelnen Zeitschriften sind entnommen dem *Journal Citation Reports (JCR) Science Edition* resp. *Social Science Edition* aus dem **ISI Web of Science (Impact Factor der Zeitschrift / durchschnittlicher Impact Factor der letzten 5 Jahre / Kategorie: Rangplatz - Anzahl Zeitschriften - Quartil)** respektive - nach dem doppelten Trennstrich (//) - dem *SCImago Journal & Country Rank Portal* auf der Grundlage von **SCOPUS (Bereich/Schwerpunkt: Rangplatz - Anzahl Zeitschriften - Quartil)**.

Erläuterung: Beispielsweise hat die Zeitschrift *Computers in Human Behavior* laut JCR für das Jahr 2010 einen *Impact Factor (IF)* von 1.9. Der durchschnittliche IF der vorausgegangenen fünf Jahre (2006 bis 2010) beträgt 2.3. Die Zeitschrift ist im JCR in zwei verschiedenen Kategorien gelistet: In der Kategorie *Psychology, Experimental*, wo sie nach ihrem IF den Rangplatz 37 von den dort insgesamt 81 gelisteten Zeitschriften belegt und damit einen Rangplatz im 2. Quartil (Q2). Ebenfalls gelistet ist die Zeitschrift in der Kategorie *Psychology, Multidisciplinary*. Dort belegt sie mit ihrem Rangplatz 26 von insgesamt 120 Zeitschriften einen Platz im 1. Quartil (Q1). SCImago listet die Zeitschrift *Computers in Human Behavior* in drei verschiedenen Kategorien (Angaben für das Jahr 2010): Im Bereich (*subject area*) *Computer Science* und dort im Schwerpunkt (*subject category*) *Computer Science Applications* (Rangplatz 54 von 194 Zeitschriften, Q2); im Bereich *Psychology* und dort im Schwerpunkt *Developmental and Educational Psychology* (Rangplatz 29 von 91 Zeitschriften, Q2) sowie im Bereich *Psychology* und dort im Schwerpunkt *Experimental and Cognitive Psychology* (Rangplatz 36 von 53 Zeitschriften, Q3). Die Rankreihung erfolgt jeweils auf der Grundlage des *SCImago Journal Rank Indicator (SJR)*, einem speziell normierten Mass für den Impact einer Zeitschrift auf Basis der Einträge in SCOPUS.

Durch Fettdruck im folgenden hervorgehoben sind **Rangplätze im 1. Quartil (Q1)** einer Kategorie.

² $IF(2011) = 4.0 / IF(5\text{-Year}) = 4.1$ / ***Clinical Neurology: 31 – 191 – Q1 // Medicine/Neurology (clinical): 25 – 236 – Q1.***

Fischer, S., Meyer, A., Hermann, E., Tuch, A., & Munsch, S. (2012). Night eating syndrome in young adults: Delineation from other eating disorders and clinical significance. *Psychiatry Research*, 200, 494-501.³

The Night Eating Syndrome (NES) is a recently described disordered eating style whose status in current diagnostic systems needs to be further clarified. The aim of this study was to increase knowledge about the clinical features of NES in a sample of 1514 young adults aged 18–26 years from the general population who participated in an anonymous Internet survey. We first examined characteristics of NES and tried to delineate it from healthy controls as well as from other eating disorders in terms of socio-demography, eating disorder pathology and general psychopathology. Second, we attempted to further clarify the clinical utility of the NES by assessing the degree of distress as well as impairment. Twenty (1.3%) participants with NES were identified and there was only modest overlap between NES and both Binge Eating Disorder (BED) and Bulimia nervosa (BN) according to questionnaire-based DSM-IV criteria. Compared to healthy controls, NES individuals reported more pronounced eating disorder pathology as well as general psychopathology (depressive symptoms, chronic social stress). NES seems to be associated with considerable distress and impairment. Implications for the validity and classification of NES are discussed.

Hubacher, M., Calabrese, P., Bassetti, C., Carota, A., Stoecklin, M. & Penner, I.-K. (2012). Assessment of Post-Stroke Fatigue: The Fatigue Scale for Motor and Cognitive Functions. *European Neurology*, 67, 377-384.⁴

Background/Aims: Post-stroke fatigue (PSF) is an important but still controversial issue since knowledge on its nature is still humble. The aim of the present study was to characterize PSF beyond the subacute phase. Methods: Thirty-one stroke patients (gender: 6 female, 25 male; age range: 35-76 years; 28 patients with ischemic stroke, 3 patients with hemorrhagic stroke; mean delay after stroke: 50.65 +/- 31.57 days) were recruited and assessed by measures of fatigue (Fatigue Scale for Motor and Cognitive Functions [FSMC], Fatigue Severity Scale, and Modified Fatigue Impact Scale), depression (Beck Depression Inventory Fast Screen), cognition (Brief Repeatable Battery of Neuropsychological Tests) and upper and lower extremity functions (Nine-Hole Peg Test and 25-foot walk). Results: Depending on the different scales, PSF prevalence ranged from 16.1 to 58.1%. Depression measures correlated significantly ($r(29) \geq 0.46$; $p < 0.01$) with the results of all fatigue scales. Seventy-one percent of patients showed cognitive deficits in at least one cognitive domain. Cognitive fatigue measured by one subscale of the FSMC correlated most significantly with mental speed, working memory, and verbal short-term memory, while the motor subscale was associated with upper and lower extremity functions, mental speed, visual short-term memory, and working memory. A differentiation between lesion localization and fatigue severity in the motor or cognitive domain was only possible when applying the FSMC. Patients with cortical lesions scored higher on the cognitive subscale, while patients with subcortical lesions showed higher physical subscale scores. Conclusion: The present pilot study revealed differences between lesion localization and subdomains of fatigue after stroke by applying a new fatigue scale (FSMC). The results underline the necessity for separate assessment of motor and cognitive fatigue in stroke patients.

Langdon, D.W., Amato, M.P. Boringa, J., Brochet, B., Foley, F. Fredrikson, S., Hämäläinen, P., Hartung, H.-L., Krupp, L., Penner, I.-K. AT Reder, A.T., & Benedict, R.H.B. (2012). Recommendations for a Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS). *Multiple Sclerosis Journal*, 18, 891-898.⁵

Background: Cognitive impairment in MS impacts negatively on many patients at all disease stages and in all subtypes. Full clinical cognitive assessment is expensive, requiring expert staff and special equipment. Test versions and normative data are not available for all languages and cultures.

³ IF(2011) = 2.5 / IF(5-Year) = 2.8 / *Psychiatry*: 56 – 130 – Q2 / *Psychiatry and Mental Health*: 54 – 328 – Q1.

⁴ IF(2011) = 1.8 / IF(5-Year) = 1.8 / *Clinical Neurology*: 110 – 192 – Q3 / *Neurosciences*: 183 – 244 – Q4 // *Medicine/Neurology (clinical)*: 95 – 242 – Q2.

⁵ IF(2011) = 4.3 / IF(5-Year) = 3.8 / *Clinical Neurology*: 27 – 191 – Q1 // *Medicine/Neurology (clinical)*: 26 – 236 – Q1.

Objective: To recommend a brief cognitive assessment for multiple sclerosis (MS) that is optimized for small centers, with one or few staff members, who may not have neuropsychological training and constructed to maximize international use.

Methods: An expert committee of twelve members representing the main cultural groups that have so far contributed considerable data about MS cognitive dysfunction was convened. Following exhaustive literature review, peer-reviewed articles were selected to cover a broad spectrum of cultures and scales that targeted cognitive domains vulnerable to MS. Each was rated by two committee members and candidate scales were rated on psychometric qualities (reliability, validity, and sensitivity), international application, ease of administration, feasibility in the specified context, and acceptability to patients.

Results: The committee recommended the Symbol Digit Modalities Test, if only 5 minutes was available, with the addition of the California Verbal Learning Test – Second Edition and the Brief Visuospatial Memory Test – Revised learning trials if a further 10 minutes could be allocated for testing.

Conclusions: A brief cognitive assessment for MS has been recommended. A validation protocol has been prepared for language groups and validation studies have commenced.

Penner, I.-K., Kobel, M., Stoecklin, M., Weber, P., Opwis, K. & Calabrese, P. (2012). The Stroop task: Comparison between the original paradigm and computerized versions in children and adults. *The Clinical Neuropsychologist*, 26, 1142-1153.⁶

The Stroop task has a long-standing history in psychological research and diagnostics, and many variants have emerged. Computerized versions have recently gained popularity because of their applicability in brain-imaging studies. It remains unclear, however, whether computerized versions are content valid with reference to the original task. We compare the performance in the original task with two computerized versions. All three versions show high test-retest reliability and are able to elicit interference effects, but to varying degrees. However, performances in the computerized versions and in the original task do not correlate. The transition from oral to manual response and from listed to single stimulus presentation seems not only to diminish the interference effect, but also to alter its nature in such a way that it no longer looks genuinely "Stroop-like". These findings have important clinical implications on the use and interpretation of computerized Stroop tasks in children and adults.

Penner, I.-K., Stemper, B., Calabrese, P., Freedman, M. S., Polman, C. H., Edan, G., Hartung, H.-P., Miller, D. H., Montalban, X., Brakhof, F., Pleimes, D., Lanius, V., Pohl, C., Kappos, L., & Sandbrink, R. (2012). Evaluation of a new approach for semi-automatic segmentation of the cerebellum in patients with multiple sclerosis. *Multiple Sclerosis Journal*, 18, 1466-1471.⁷

Background: Cognitive dysfunction occurs at the earliest stages of multiple sclerosis (MS), including the stage of clinically isolated syndrome (CIS).

Methods: We evaluated the impact of interferon beta-1b (IFN beta-1b) 250 A µg on cognitive performance during the CIS stage in the BENEFIT study. Cognition was assessed by Paced Auditory Serial Addition Test-3" (PASAT-3") scores.

Results: Improvement in PASAT-3" score from baseline to year two was greater for IFN beta-1b treatment than placebo in patients not reaching clinically definite MS (CDMS) by year two. The treatment effect was maintained at year five and was statistically significant.

Conclusions: To conclude, early IFN beta-1b treatment had a sustained positive effect on PASAT-3" score over the 5-year BENEFIT study.

⁶ IF(2011) = 2.1 / IF(5-Year) = 2.2 / *Clinical Neurology*: 98 – 191 - Q3 / *Psychology*: 38 – 75 - Q3 // *Medicine/Neuropsychology and Physiological Psychology*: 22 – 39 – Q3 / *Psychology/Psychiatry and Mental Health*: 76 – 325 - Q1.

⁷ IF(2011) = 4.3 / IF(5-Year) = 3.8 / *Clinical Neurology*: 27 – 192 – Q1 // *Medicine/Neurology (clinical)*: 26 – 236 – Q1.

Penner, I.-K., Vogt, A., Stoecklin, M., Gschwind, L., Opwis, K. & Calabrese, P. (2012). Computerized working memory training in healthy adults: A comparison of two different training schedules. *Neuropsychological Rehabilitation*, 22, 716-733.⁸

This study compared a high intensity working memory training (45 minutes, 4 times per week for 4 weeks) with a distributed training (45 minutes, 2 times per week for 8 weeks) in middle-aged, healthy adults. The aim was to clarify whether a computerised working memory training is effective and whether intensity of training influences training outcome. To evaluate the efficacy and possible transfer effects, a neuropsychological test battery assessing short- and long-term memory, working memory, executive functions and mental speed was applied at baseline and at retest. Our results indicate that the distributed training led to increased performance in all cognitive domains when compared to the high intensity training and the control group without training. The most significant differences revealed by interaction contrasts were found for verbal and visual working memory, verbal short-term memory and mental speed. These results support the hypothesis that cognitive enhancement by cognitive intervention is effective in healthy individuals, and that a distributed training schedule is superior to a high intensity intervention.

Seckler, M., Opwis, K., Tuch, A. & Bargas-Avila, J. (2012). User-friendly locations of error messages in Web forms: Put them on the right side of the erroneous input field. *Interacting with Computers*, 24, 107-118.⁹

There are many ways of placing error messages in web forms. A study of web conventions shows that the most common approach is to display error messages embedded in the form at the top of the entire form. Six frequent locations (right, left, above and below the erroneous input field, as well as on the top and at the bottom of the form) were tested in an online study with n = 303 participants. Results of efficiency, effectiveness and satisfaction show that the locations near the erroneous input field lead to a significantly better performance than the error messages on the top and at the bottom of the form; in addition error messages on the right side of the erroneous input field were subjectively evaluated as the most satisfying and intuitive by participants. The results indicate possible improvements for online shops, where error messages are currently mostly placed on the top of the form.

Tuch, A., Presslauer, E., Stöcklin, M. Opwis, K. & Bargas-Avila, J. (2012). The role of visual complexity and prototypicality regarding first impression of websites: Working towards understanding aesthetic judgments. *International Journal of Human Computer Studies*, 70, 794-811.¹⁰

This paper experimentally investigates the role of visual complexity (VC) and prototypicality (PT) as design factors of websites, shaping users' first impressions by means of two studies. In the first study, 119 screenshots of real websites varying in VC (low vs. medium vs. high) and PT (low vs. high) were rated on perceived aesthetics. Screenshot presentation time was varied as a between-subject factor (50 ms vs. 500 ms vs. 1000 ms). Results reveal that VC and PT affect participants' aesthetics ratings within the first 50 ms of exposure. In the second study presentation times were shortened to 17, 33 and 50 ms. Results suggest that VC and PT affect aesthetic perception even within 17 ms, though the effect of PT is less pronounced than the one of VC. With increasing presentation time the effect of PT becomes as influential as the VC effect. This supports the reasoning of the information-processing stage model of aesthetic processing (Leder et al., 2004), where VC is processed at an earlier stage than PT. Overall, websites with low VC and high PT were perceived as highly appealing.

⁸ IF(2011) = 1.7 / IF(5-Year) = 2.4 / *Neurosciences*: 187 – 244 – Q4 / *Psychology*: 46 – 75 - Q3 // *Neuroscience/Neuroscience (miscellaneous)*: 101 – 162 – Q3 / ***Medicine/Rehabilitation*: 20 – 91 - Q1.**

⁹ IF(2011) = 1.2 / IF(5-Year) = 1.5 / *Computer Science, Cybernetics*: 8 – 20 – Q2 // *Computer Science/Human-Computer Interaction*: 17 – 38 – Q2.

¹⁰ IF(2011) = 1.2 / IF(5-Year) = 2.0 / ***Ergonomics*: 2 – 14 – Q1** / *Psychology, Multidisciplinary*: 36 – 120 – Q2 // *Computer Science/Artificial Intelligence*: 41 – 109 – Q2 / ***Computer Science/Human Computer Interaction*: 9 – 38 – Q1** / *Psychology/Experimental and Cognitive Psychology*: 28 – 53 – Q3.

Tuch, A., Roth, S. P., Hornbæk, K., Opwis, K. & Bargas-Avila, J. (2012). Toward understanding the relation between usability, aesthetics, and affect in HCI. *Computers in Human Behavior*, 28, 1596-1607.¹¹

This paper analyzes the relation between usability and aesthetics. In a laboratory study, 80 participants used one of four different versions of the same online shop, differing in interface-aesthetics (low vs. high) and interface-usability (low vs. high). Participants had to find specific items and rate the shop before and after usage on perceived aesthetics and perceived usability, which were assessed using four validated instruments. Results show that aesthetics does not affect perceived usability. In contrast, usability has an effect on post-use perceived aesthetics. Our findings show that the “what is beautiful is usable” notion, which assumes that aesthetics enhances the perception of usability can be reversed under certain conditions (here: strong usability manipulation combined with a medium to large aesthetics manipulation). Furthermore, our results indicate that the user’s affective experience with the usability of the shop might serve as a mediator variable within the aesthetics–usability relation: The frustration of poor usability lowers ratings on perceived aesthetics. The significance of the results is discussed in context of the existing research on the relation between aesthetics and usability.

Weier, K., Beck, A., Magon, S., Amann, M., Naegelin, Y., Penner, I.-K.), Thuerling, M., Aurich, V., Derfuss, T., Radue, E.-W., Stippich, C., Kappos, L.,)1; Timmann, D. & Sprenger, T. (2012). Evaluation of a new approach for semi-automatic segmentation of the cerebellum in patients with multiple sclerosis. *Journal of Neurology*, 259, 2673-2680.¹²

Cerebellar dysfunction is an important contributor to disability in patients with multiple sclerosis (MS), however, few in vivo studies focused on cerebellar volume loss so far. This relates to technical challenges regarding the segmentation of the cerebellum. In this study, we evaluated the semi-automatic ECCET software for performing cerebellar volumetry using high-resolution 3D T1-MR scans in patients with MS and healthy volunteers. We performed test-retest as well as inter-observer reliability testing of cerebellar segmentation and compared the ECCET results with a fully automatic cerebellar segmentation using the FreeSurfer software pipeline in 15 MS patients. In a pilot matched-pair analysis with another data set from 15 relapsing-remitting MS patients and 15 age- and sex-matched healthy controls (HC), we assessed the feasibility of the ECCET approach to detect MS-related cerebellar volume differences. For total normalized cerebellar volume as well as grey and white matter volumes, intrarater (intraclass correlation coefficient (ICC) = 0.99, 95 % CI = 0.98-0.99) and interobserver agreement (ICC = 0.98, 95 % CI = 0.74-0.99) were strong. Comparison between ECCET and FreeSurfer results likewise yielded a good intraclass correlation (ICC = 0.86, 95 % CI = 0.58-0.95). Compared to HC, MS patients had significantly reduced normalized total brain, total cerebellar, and grey matter volumes (p a parts per thousand currency sign 0.05). ECCET is a suitable tool for cerebellar segmentation showing excellent test-retest and inter-observer reliability. Our matched-pair analysis between MS patients and healthy volunteers suggests that the method is sensitive and reliable in detecting cerebellar atrophy in MS.

¹¹ IF(2011) = 2.3 / IF(5-Year) = 2.5 / *Psychology, Experimental*: 26 – 84 – Q2 / ***Psychology, Multidisciplinary*: 22 – 124 – Q1** // *Computer Science/Computer Science Applications*: 51- 194 – Q2 / *Psychology/Developmental and Educational Psychology*: 27 – 91 – Q2 / *Psychology/Experimental and Cognitive Psychology*: 29 – 53 – Q3.

¹² IF(2011) = 3.5 / IF(5-Year) = 3.2 / ***Clinical Neurology*: 41 – 192 – Q1** // ***Neurology (clinical)*: 33 – 242 – Q1**.

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