

JAHRESBERICHT 2020

Allgemeine Psychologie und Methodologie



**Fakultät für Psychologie
Universität Basel**

JAHRESBERICHT 2020

Allgemeine Psychologie und Methodologie

Mitarbeiterinnen und Mitarbeiter der Abteilung (per 31.12.2020)

Abteilungsleitung

Prof. Dr. Klaus Opwis

Administration

Paula Giger

Assistierende

Dr. Florian Brühlmann
M.Sc. Lena F. Aeschabch
M.Sc. Sebastian Perrig

Hilfsassistierende

M.Sc. Philipp Baumgartner
Nick von Felten
B.Sc. Dominik Kayser
M.A. Claire Reymond
B.Sc. Nicolas Scharowski
B.Sc. Melanie Svab
B.Sc. Lorena Weder

Lehrbeauftragte

Dr. Javier Bargas-Avila (HS 2020)
Prof. Dr. Andreas Gold (FS 2020, HS 2020)
Dr. Chri Hübscher (FS 2020)
Dr. Stefan Leuthold (HS 2020)
Prof. Dr. Christian Rösler (FS 2020, HS 2020)
Dr. Mirjam Seckler (FS 2020)
M.Sc. Beat Vollenwyder (HS 2020)

Kurze Chronologie des Jahres 2020

Kurzer chronologisch geordneter Gesamtüberblick über bemerkenswerte Vorkommnisse im Jahr 2020 Sicht der Abteilung für Allgemeine Psychologie und Methodologie

März 2020

Der Bundesrat beschliesst die ausserordentliche Lage und einen weitreichenden Lockdown (COVID-19). Die Universität stellt ihren Lehrbetrieb in kurzer Zeit weitestgehend auf digitalen Unterricht um und verordnet Homeoffice für die Mitarbeitenden. In der Folge ist der direkte persönliche Kontakt auf ein Minimum beschränkt. Eine sehr schwierige Situation für alle...

Mai 2020

Klaus Opwis wird als externer Experte und Gutachter für die Dissertation von Fabian Ries zum Thema *Visual complexity in human-machine interaction* an der KIT-Fakultät für Maschinenbau des Karlsruher Instituts für Technologie (KIT) akkreditiert.

Personalialia in 2020

Juni 2020

Stephan Zähringer verlässt die Abteilung und Universität für eine neue berufliche Herausforderung in der Privatwirtschaft.

Paula Giger beginnt ihre Tätigkeit als neue Hilfsassistentin in der Abteilung.

August 2020

Sebastian Perrig beginnt seine Tätigkeit als neuer Assistent in der Abteilung.

September 2020

Nick von Felten und *Melanie Svab* beginnen ihre Tätigkeiten als neuer Hilfsassistenten in der Abteilung.

Drittmittel in 2020

2020 konnten Drittmittel im Umfang von rund CHF 50'000 erfolgreich eingeworben werden, die insbesondere zur Finanzierung zusätzlicher Personalanstellungen (Lehrbeauftragte, Assistierende, Doktorierende, Hilfsassistenten) genutzt wurden.

Lehrveranstaltungen

Frühlingssemester 2020

Bachelorstudium

Denken, Problemlösen, Expertise (Vorlesung; Opwis)
Lernschwierigkeiten: Ursachen, Diagnose, Prävention und Intervention (Gold, LA)
Empirisch-Experimentelles Projektseminar (Aeschbach)
Wie schreibe ich eine Bachelorarbeit in der Mensch Maschine Interaktion?
(Aeschbach, Brühlmann, Zähringer & Opwis)

Masterstudium

Aktuelle Forschungsthemen der Mensch-Maschine Interaktion II
(Aeschbach, Brühlmann & Zähringer)
Usability-Testing: Evaluation der Mensch-Maschine Interaktion (Seckler, LA & Brühlmann)
Konzeption und Design von User Interfaces II (Hübscher, LA)
Einführung in die Analytische Psychologie C.G. Jung (Roesler, LA)
Praxis der analytischen Psychotherapie C.G. Jungs: Anwendung und Vertiefungen (Roesler, LA)

Masterprojekte

Mensch Maschine Interaktion (Aeschbach, Brühlmann & Opwis)
Experimentelle Kognitionsforschung über die Lebensspanne (Opwis)

Doktoratskolloquium am 19. Februar 2020

Relationship between user experience and web accessibility (Beat Vollenwyder)
Virtual reality for airport security (Thomas Wyssenbach)
Youth engagement (Sandra Cortesi)
CHI: A conference on Western, Educated, Industrialized, Rich, Democratic, abgek. WEIRD authors
and WEIRD participants samples (Sebastian Linxen)

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

Psychologie: Einführung in die Kognitive Psychologie (Opwis)

Herbstsemester 2020

Bachelorstudium

Kognitive Psychologie I: Wahrnehmung, Aufmerksamkeit, Gedächtnis
(Propädeutische Vorlesung; Opwis)
Einführung in die Mensch Maschine Interaktion (Bargas-Avila, LA)
Empirisch-Experimentelles Projektseminar (Aeschbach)
Wie schreibe ich eine Bachelorarbeit in der Mensch Maschine Interaktion?
(Aeschbach, Brühlmann, Perrig & Opwis)
Einführung in die Analytische Psychologie C.G. Jung (Roesler, LA)
Praxis der analytischen Psychotherapie C.G. Jungs: Anwendung und Vertiefungen (Roesler, LA)

Masterstudium

Gedächtnisforschung aus kognitionspsychologischer Sicht (Opwis)

Lesen und Lernen mit digitalen Medien (Gold, LA)

Unternehmensberatung im Bereich der Mensch-Maschine Interaktion (Leuthold, LA)

Web Accessibility and Inclusive Design (Vollenwyder, LA)

Masterprojekte

Mensch Maschine Interaktion (Aeschbach, Brühlmann, Perrig & Opwis)

Experimentelle Kognitionsforschung über die Lebensspanne (Opwis)

Doktoratskolloquium am 16. September 2020

How do different aesthetic interface designs of a learning app impact students' interest and learning performance? (Alessia Ruf)

Publikationen in 2020

Peer-Reviewed Artikel und Beiträge

Brühlmann, F., Baumgartner, P., Wallner, G., Kriglstein, S. & Mekler, E. D. (2020). Motivational profiling of league of legends players. *Frontiers in Psychology*, 11 (article 1307, 18 pages).

Player motivation is a key research area within games research, with the aim of understanding how the motivation of players is related to their experience and behavior in the game. We present the results of a cross-sectional study with data from 750 players of League of Legends, a popular Multiplayer Online Battle Arena game. Based on the motivational regulations posited by Self-Determination Theory and Latent Profile Analysis, we identify four distinct motivational profiles, which differ with regards to player experience and, to a lesser extent, in-game behavior. While the more self-determined profiles “Intrinsic” and “Autonomous” report mainly positive experience-related outcomes, a considerable part of the player base does not. Players of the “Amotivated” and “External” profile derive less enjoyment, experience more negative affect and tension, and score lower on vitality, indicating game engagement that is potentially detrimental to players’ well-being. With regards to game metrics, minor differences in the rate of assists in unranked matches and performance indicators were observed between profiles. This strengthens the notion that differences in experiences are not necessarily reflected in differences in behavioral game metrics. Our findings provide insights into the interplay of player motivation, experience, and in-game behavior, contributing to a more nuanced understanding of player-computer interaction.

Brühlmann, F., Petralito, S., Aeschbach, L. F. & Opwis, K. (2020). The quality of data collected online: An investigation of careless responding in a crowdsourced sample. *Methods in Psychology*, 2, 13 pages.

Despite recent concerns about data quality, various academic fields rely increasingly on crowdsourced samples. Thus, the goal of this study was to systematically assess carelessness in a crowdsourced sample (N = 394) by applying various measures and detection methods. A Latent Profile Analysis revealed that 45.9% of the participants showed some form of careless behavior. Excluding these participants increased the effect size in an experiment included in the survey. Based on our findings, several recommendations of easy to apply measures for assessing data quality are given.

Brühlmann, F., Petralito, S., Rieser, D.C., Aeschbach, L. F. & Opwis, K. (2020). TrustDiff: Development and Validation of a semantic differential for user trust on the Web. *Journal of Usability Studies*, 16, 29-48.

Trust is an essential factor in many social interactions involving uncertainty. In the context of online services and websites, the problems of anonymity and lack of control make trust a vital element for successful e-commerce. Despite trust having received sustained attention, there is a need for validated questionnaires that can be readily applied in different contexts and for various products. We, therefore, report the development and validation of the TrustDiff scale, a semantic differential that measures user trust on three dimensions. Compared to Likert-type scales, semantic differentials have advantages when it comes to measuring multidimensional constructs in different contexts. Using 10 items, the TrustDiff semantic differential measures user perceptions of the Benevolence, Integrity, and Competence of an online vendor. The scale was investigated in three independent studies with over 1,000 participants and shows good structural validity, high reliability, and correlates expectedly with related scales. As a test of criterion validity, the TrustDiff scale showed significant differences on all subscales in a study involving a manipulated website.

Buttrick, N.R., ..., Aeschbach, L. F., ... Brühlmann, F., & Wood, M. J. (2020). Many labs 5: Registered replication of Vohs and Scholler (2008), Experiment 1. *Advances in Methods and Practices in Psychological Science*, 3, 429-439.

Does convincing people that free will is an illusion reduce their sense of personal responsibility? Vohs and Schooler (2008) found that participants reading from a passage “debunking” free will cheated more on experimental tasks than did those reading from a control passage, an effect mediated by decreased belief in free will. However, this finding was not replicated by Embley, Johnson, and Giner-Sorolla (2015), who found that reading arguments against free will had no effect on cheating in their sample. The present study investigated whether hard-to-understand arguments against free will and a low-reliability measure of free-will beliefs account for Embley et al.’s failure to

replicate Vohs and Schooler's results. Participants ($N = 621$) were randomly assigned to participate in either a close replication of Vohs and Schooler's Experiment 1 based on the materials of Embley et al. or a revised protocol, which used an easier-to-understand free-will-belief manipulation and an improved instrument to measure free will. We found that the revisions did not matter. Although the revised measure of belief in free will had better reliability than the original measure, an analysis of the data from the two protocols combined indicated that free-will beliefs were unchanged by the manipulations, $d = 0.064$, 95% confidence interval = $[-0.087, 0.22]$, and in the focal test, there were no differences in cheating behavior between conditions, $d = 0.076$, 95% CI = $[-0.082, 0.22]$. We found that expressed free-will beliefs did not mediate the link between the free-will-belief manipulation and cheating, and in exploratory follow-up analyses, we found that participants expressing lower beliefs in free will were not more likely to cheat in our task.

Ebersole, C.R., ..., Aeschbach, L. F., ... Brühlmann, F., & Nosek, B. A. (2020). Many labs 5: Testing pre-data-collection peer review as an intervention to increase replicability. *Advances in Methods and Practices in Psychological Science*, 3, 309-331.

Replication studies in psychological science sometimes fail to reproduce prior findings. If these studies use methods that are unfaithful to the original study or ineffective in eliciting the phenomenon of interest, then a failure to replicate may be a failure of the protocol rather than a challenge to the original finding. Formal pre-data-collection peer review by experts may address shortcomings and increase replicability rates. We selected 10 replication studies from the Reproducibility Project: Psychology (RP:P; Open Science Collaboration, 2015) for which the original authors had expressed concerns about the replication designs before data collection; only one of these studies had yielded a statistically significant effect ($p < .05$). Commenters suggested that lack of adherence to expert review and lowpowered tests were the reasons that most of these RP:P studies failed to replicate the original effects. We revised the replication protocols and received formal peer review prior to conducting new replication studies. We administered the RP:P and revised protocols in multiple laboratories (median number of laboratories per original study = 6.5, range = 3–9; median total sample = 1,279.5, range = 276–3,512) for high-powered tests of each original finding with both protocols. Overall, following the preregistered analysis plan, we found that the revised protocols produced effect sizes similar to those of the RP:P protocols ($\Delta r = .002$ or $.014$, depending on analytic approach). The median effect size for the revised protocols ($r = .05$) was similar to that of the RP:P protocols ($r = .04$) and the original RP:P replications ($r = .11$), and smaller than that of the original studies ($r = .37$). Analysis of the cumulative evidence across the original studies and the corresponding three replication attempts provided very precise estimates of the 10 tested effects and indicated that their effect sizes (median $r = .07$, range = $.00-.15$) were 78% smaller, on average, than the original effect sizes (median $r = .37$, range = $.19-.50$).

Reymond, C., Pelowski, M., Opwis, K., Takala, T. & Mekler, E.D. (2020). Aesthetic evaluation of digitally reproduced art images. *Frontiers in Psychology*, 11 (article 615575, 15 pages).

Most people encounter art images as digital reproductions on a computer screen instead of as originals in a museum or gallery. With the development of digital technologies, high-resolution artworks can be accessed anywhere and anytime by a large number of viewers. Since these digital images depict the same content and are attributed to the same artist as the original, it is often implicitly assumed that their aesthetic evaluation will be similar. When it comes to the digital reproductions of art, however, it is also obvious that reproductions do differ from the originals in various aspects. Besides image quality, resolution, and format, the most obvious change is in the representation of color. The effects of subjectively varying surface-level image features on art evaluation have not been clearly assessed. To address this gap, we compare the evaluation of digital reproductions of 16 expressionist and impressionist paintings manipulated to have a high color saturation vs. a saturation similar to the original. We also investigate the impact of viewing time (100 ms vs. unrestricted viewing time) and expertise (art experts vs. laypersons), two other aspects that may impact the perception of art in online contexts. Moreover, we link these dimensions to a recent model of aesthetic experience [the Vienna Integrated Model of Top-Down and Bottom-Up Processes in Art Perception (VIMAP)]. Results suggest that color saturation does not exert a major influence on liking. Cognitive and emotional aspects (interest, confusion, surprise, and boredom), however, are affected – to different extents for experts and laypersons. For laypersons, the increase in color saturation led to more positive assessments of an artwork, whereas it resulted in increased confusion for art experts. This insight is particularly important when it comes to reproducing artworks digitally. Depending on the intended use, increasing or decreasing the color saturation of the digitally reproduced image might be most appropriate. We conclude with a discussion of these findings and address the question of why empirical aesthetics requires more precise dimensions to better understand the subtle processes that take place in the perception of today's digitally reproduced art environment.

Steinemann, S. T., Geelan, B. J., Zähringer, S., Mutuura, K., Wolkow, W., Frasseck, L. & Opwis, K. (2020). Potentials and pitfalls of increasing prosocial behavior and self-efficacy over time using an online personalized platform. *Plos One*, 29 pages.

Background. This longitudinal mixed methods experimental study aimed to better understand the interplay between digital technology exposure over time, self-efficacy, and prosocial behavior in everyday contexts.

Methods. 66 psychology students tracked their daily prosocial behavior over three weeks. Additionally, half of the participants were randomly assigned to receive access to an online platform, which made personalized suggestions for prosocial actions to complete. Qualitative post-study interviews complemented quantitative measures.

Results. Platform exposure had no measurable impact beyond that of tracking over time on either prosocial behavior or self-efficacy. Tracking increased self-efficacy to perform everyday prosocial actions, but did not affect self-efficacy to impact change. Prosocial behavior was predicted by self-efficacy to impact change. Enjoyment of the platform predicted completing higher numbers of suggested prosocial actions and was related to a higher likelihood to continue using the platform in the future. Avenues for increasing platform effectiveness include context-specific action personalization, an effective reminder system, and better support for the development of self-efficacy to impact change through meaningful actions.

Conclusion. Technology for prosocial behavior should be enjoyable, capable of being seamlessly integrated into everyday life, and ensure that suggested actions are perceived as meaningful in order to support the sustainable development of self-efficacy and prosocial behavior over time.

Vollenwyder, B., Buchmüller, E., Trachsel, C., Opwis, K. & Brühlmann, F. (2020). My Train Talks to Me: Participatory Design of a Mobile App for Travellers with Visual Impairments. In K. Miesenberger et al. (Eds.), *17th International Conference on Computers Helping People with Special Needs (ICCHP 2020). Lecture Notes in Computer Science, Volume 12376*, pp 10-18. Heidelberg: Springer International Publishing.

Travellers with visual impairments may face substantial information gaps on their journeys by public transport. For instance, information displayed in trains, as well as on departure boards in train stations and on platforms, are often not available in acoustic or tactile form. Digital technologies, such as smartphones or smartwatches, can provide an alternative means of access. However, these alternatives do not guarantee that the user experience is comparable in value, quality and efficiency. The present case study details a participatory design process, where travellers with visual impairments co-designed a mobile app. The goal was to tackle information gaps on journeys by public transport and to learn how participatory design can facilitate the provision of comparable experiences for users with disabilities. Travellers with visual impairments were involved in a collaborative process in all project phases, including problem identification, technical feasibility, proof of concept, design and development. Participatory design contributed to a thorough understanding of the user perspective and allowed the app to be optimised for the needs of travellers with visual impairments. Furthermore, co-design proved to be an effective method for fostering awareness and knowledge about digital accessibility at all organisational levels.

Vollenwyder, B., Opwis, K. & Brühlmann, F. (2020). How Web professionals perceive Web accessibility in practice: Active roles, process phases and key disabilities. In K. Miesenberger et al. (Eds.), *17th International Conference on Computers Helping People with Special Needs (ICCHP 2020). Lecture Notes in Computer Science, Volume 12376*, pp 294-302. Heidelberg: Springer International Publishing.

Providing usable web information and services to as many people as possible confronts web professionals with a challenging task. The present study delivers insights about how Web accessibility is perceived in practice. Using a survey, a total of 163 web professionals in various roles reported their evaluation of Web accessibility implementation in their projects with regard to three aspects: the professional roles primarily responsible for Web accessibility, key phases in the development process, and the types of disabilities primarily considered. Results show that non-technical professional roles are perceived to be less involved in the development process, that Web accessibility considerations are mainly restricted to the design and implementation phases of projects, and that efforts focus predominantly on the needs of people with visual impairments.

Qualifikationsarbeiten (Abschluss in 2020)

Dissertationen

Kühne, Swen Jonas (2020). *Nudging healthy food and sustainable choices*. (Datum der Disputation: 27. Oktober 2020).

Steinemann, Sharon (2020). *The impact of interactive technology on prosocial behavior*. (Datum der Disputation: 8. Mai 2020).

Masterarbeiten

Baumgartner, Philipp (2020). *Chasing the quitting player*.

Bergamin, Céline (2020). *The influence of stress and task difficulty on usability*.

Fenn, Zöe (2020). *Lassoing the loop: An examination of factors influencing trust in automation*.

Mutuura, Kamalatharsi (2020). *Can participation in a programming course make a difference in refugee's lives? The refugees' experience of a programming course in terms of perceived integration, life satisfaction, prospects for the future and programming self-efficacy stress in technology use*.

Perrig, Sebastian (2020). *Validating the AttrakDiff: Structured literature review and questionnaire validation in a mobile device setting*.

Ruch, Alexander (2020). *Antecedents of perceived stress in technology use*.

Scharowski, Nicolas (2020). *Transparency and trust in AI: Measuring the effect of human-friendly AI explanations on objective and subjective trust*.

Siebenmann, Joel (2020). *Emotional flow: Towards understanding the horror paradox in video games*.

Venzin, Claudio (2020). *Voluntary carbon offset options: Do they harm customer satisfaction and are fixed prices effective? An experiment in air travel online booking*.

Wehrli, Simon (2020). *Virtual attachment: How attachment styles transfer into virtuality*.

Bachelorarbeiten

Baumann, Céline (2020). *Auswirkungen und Minimierungsansätze der psychosozialen Stress-induktion an der Flughafensicherheitskontrolle*.

Baumgartner, Laura Ella (2020). *Human performance in aviation: Wie können CRM und Teamwork die Arbeit der Flight Crew in Notfallsituationen verbessern?*

Bilang, Nicole (2020). *Avatar Identification in Video Games Motivates Players*.

Burckel, Luana (2020). *Digital games and sensitive life experiences*.

Böhlen, Yannick (2020). *Can game elements change behavior based on self-efficacy?*

Most, Raphael Edison (2020). *Automation in aviation: Blessing or curse?*

Son, Gayoung (2020). *Review of meta-analytical methods: benefits and challenges of including grey literature*.

Werner, Lea (2020). *The art of offering the right things: Trust and the black-box nature of recommendation systems*.

Masterstudierende (per 31. Dezember 2020)

Bier, Johannes
Caroni, Pietro
Graf, Simon Andreas
Heiz, Manuel
Kayser, Dominik
Lüthi, Camille
Margelli, Daphne Petala Naomi
Marty, Linus
Paro, Damian
Saraceno, Sebastian
Thomaser, Marika
Treichler, Christoph
Ueffing, David
Widmann, Denise
Weder, Lorena

Doktorandinnen und Doktoranden (per 31. Dezember 2020)

Aeschbach, Lena F.
Cortesi, Sandra
Hug, Markus
Linxen, Sebastian
Martinis, Fabian
Müller, Livia
Paneth, Lisa
Perrig, Sebastian
Reymond, Claire
Riz à Porta, Robin
Ruf, Alessia
Schmid, Birgit
Vollenwyder, Beat
Wyssenbach, Thomas
Wüst, Alexandra