

## Statement of Research Interests

My research focuses on the investigation of cause-effect-relationships in different fields of Psychology, primarily Applied Psychology. I am particularly interested in analyzing how different kinds of “environments” - natural, man-made, social or work related – influence our perceptions, our well-being, our behavior, and how individuals try to cope with these demands in the sense of reducing stress by applying different coping strategies (Lazarus & Folkman, 1984). To date, I worked in three different research areas: the theoretical background of my work in the environmental field lies in the theory of affordances (Gibson, 1977), Barkers’ behavior setting approach (1968), the transactional stress theory (Lazarus & Launier, 1978) and the notion of environmental stressors (Evans & Cohen, 1987) (capitalize all or none). In the field of Social Psychology, I applied Fishbein & Ajzens’ “theory of reasoned action” (1975) on the environmental field. My work in the field of Organizational Psychology is influenced by Hackers’ action theory (1997) and Ulichs’ approach of socio-technical systems (1989) as well as by Clarks’ psycholinguistical theory of common ground (1996). Since I regard ecological validity as very important in the field of Applied Psychology, most of my studies are field studies of quasi-experimental design. Even though my research is predominantly quantitative and questionnaire-based, I have recently begun to use more qualitative and process-oriented approaches such as learning histories (Kleiner & Roth, 1997) and observation-oriented methods such as video analyses and diary methods.

In my studies in the environmental field, I implemented new methods to assess industrial and environmental odors as “environmental stressors” and correlated the results with either physiological measures or questionnaire-based evaluations of the stressor. My masters’ thesis in Psychology analyzed the effects of the time structure of traffic noise on subjects in a laboratory setting by assessing physiological and psychological parameters as well as an online-assessment of annoyance. The results showed good accordance between the different measures (Steinheider, 1990; Steinheider et al., 1989). In my Ph.D. thesis, I established new methods for estimating the odor emission on residents and validated those methods in several field studies (Steinheider, 1997; Steinheider & Winneke, 1993; Steinheider, Both & Winneke, 1998). Further studies concentrated on comparisons between different measures of odor assessment (Steinheider, Winneke & Both, 1998). In these studies, I was one of the first to prove direct associations between odors and health related effects. I concluded that industrial odors should thus be considered as environmental stressors.

In all these studies, my colleagues and I observed individual differences as well as different reactions in order to cope with the stressor. Since we assumed that environmental worry can facilitate these stress effects, we constructed a scale to assess this construct. The following study examined the effects of environmental worry on environmentally conscious behavior (Steinheider & Hodapp, 1998/99) and identified social norms as further predictor variable for environmentally conscious behavior (Steinheider et al., 1998).

My current research focuses primarily on knowledge sharing processes in organizations and research institutions and the effects of diversity in teams and groups on performance. I am interested in not only developing methods to assess knowledge sharing in teams and its effects on outcome factors, but also in examining interventions designed to improve these processes. This project was part of a major research project (SFB 374) funded by the German Research Foundation (DFG) and located at the University of Stuttgart.

In order to better understand the often unsatisfactory results of interdisciplinary, team-based projects, we developed a cooperation model consisting of the processes of communication, coordination and knowledge-sharing. We assumed that knowledge sharing or “grounding” (Clark, 1996) is crucial for the success of collaborations, but that this process is often neglected. In order to validate this model, we constructed a questionnaire and applied this questionnaire to different samples in R&D departments of companies.

In several studies we were able to prove significant associations between problems in collaborations and outcome factors, like product quality and meeting deadlines as well as with subjective effects, like team members subjective stress and job satisfaction. Cooperation problems were also significantly associated with organizational factors (Steinheider, 2000) and the structure of the team (Reiband, 2000). These studies were presented on several national and international conferences followed by publications (Steinheider, 2000; 2001; Steinheider & Burger, 2000). The results of our studies emphasized the need for developing methods to facilitate knowledge-sharing in companies.

During my fellowship at the UC Santa Barbara, I analyzed retrospectively the realization of a digital media installation in order to identify problems and synergetic effects of this transdisciplinary (engineering, cognitive sciences, computer sciences, design, psychology and art) and internationally dispersed (Helsinki, Budapest, Stuttgart, Paris, Santa Barbara) team work (George Legrady’s “Pockets full of Memories” exhibition, at the Centre Pompidou in Paris from April 18 to September 4, 2001; Steinheider & Legrady, 2001).

My current research concentrates on analyzing the associations between organizational and team structures and knowledge-sharing problems. A recent study used video-cameras to document team-meetings and analyzed the process of knowledge-sharing by categorizing team members’ statements (Steinheider & Bayerl, 2001).

I am also collaborating with Dresden University of Technology and DaimlerChrysler, Germany carrying out empirical studies on value appreciation, luxury comprehension, haptic perception and expectations about luxury cars.

## References

- Barker, R.G. (1968). *Ecological Psychology*. Stanford, CA: Stanford University Press.
- Clark, H.H. (1996). *Using Language*. Oxford: University Press.
- Evans, G. W. and Cohen, S. (1987). Environmental stress. In D. Stokols and I. Altman (Eds.), *Handbook of environmental psychology*. NY: Wiley.
- Fishbein, M., Ajzen, I. (1975): *Belief, Attitude, Intention and Behavior*. An Introduction to Theory and Research. Reading (MA): Addison-Wesley.
- Gibson, J.J. (1977). *The theory of affordances*. In R. Shaw & J. Bransford (eds.), *Perceiving, Acting and Knowing*. Hillsdale, NJ: Erlbaum.

- Hacker, W. (1997). *Allgemeine Arbeitspsychologie*. Psychische Struktur und Regulation von Arbeitstätigkeiten. Stuttgart/Toronto: Huber.
- Lazarus, R.S. & Folkman, S. (1994). *Stress, appraisal and coping*. New York: Springer.
- Lazarus, R.S., & Launier, R. (1978) Stress-related transactions between person and environment. In L.A. Pervin & M. Lewis (Eds) *Perspectives in Interactional Psychology*. (pp.287-327). New York: Plenum
- Reiband, N. (2000). *Die Bedeutung der Kooperation im Produktentwicklungs-prozess*. Unpublished Masters thesis, University of Tübingen.
- Roth, G. & Kleiner, A. (1997). Learning Histories: A New Tool For Turning Organizational Experience Into Action, *Harvard Business Review*, Sept/Oct 1997.
- Steinheider, B. (1998/99). Environmental Odours and Somatic Complaints. *Zentralblatt für Hygiene und Umweltmedizin*, 202, 101-119.
- Steinheider, B. (2001). Supporting the Co-operation of R&D-Teams in the Product Development Process. In *Proceedings of the 5<sup>th</sup> Conference on Engineering Design and Automation*, EDA 2001, August 5-8 2001, Las Vegas, Nevada, CD-ROM.
- Steinheider, B. (2000). Ergonomical conception of cooperative work for the development of innovative products. Unpublished report for the German Research Foundation (DFG).
- Steinheider, B. (1997). *Wirkungen von Industrieerüchen als Umweltstressoren*. (Effects of industrial odours as environmental stressors). DUV Psychologie: Wiesbaden, 1997.
- Steinheider, B., Bayerl, S. (2001). Wissensintegration und deren Unterstützung in interdisziplinären F&E-Teams. In: Gesellschaft für Arbeitswissenschaft e.V. (Hrsg.). *Arbeitsgestaltung, Flexibilisierung, Kompetenzentwicklung*. Dortmund: GfA-Press, S. 303 – 308.
- Steinheider, B. & Legrady, G. (2001). Realizing a Digital Media Installation: Problems and Synergetic Effects of an Interdisciplinary Collaboration. In *Proceedings of the MTAC 2001 – Multimedia Technologies and Applications Conference*, University of California, Irvine, November 7<sup>th</sup> to 9<sup>th</sup> 2001, 255-260.
- Steinheider, B. & Edith Burger (2000). Kooperation in interdisziplinären Teams. In: Gesellschaft für Arbeitswissenschaft e.V. (Hrsg.): *Komplexe Arbeitssysteme – Herausforderungen für Analyse und Gestaltung*. Dortmund: GfA-Press, S. 553 –557
- Steinheider B. & Hodapp, V. (1998/99). Environmental worry: a Concept to explain differences in environmentally conscious behaviour? *Zentralblatt für Hygiene und Umweltmedizin*, 202, 273-289.
- Steinheider, B. & Winneke, G. (1993). Industrial odours as environmental stressors: exposure-annoyance-associations and their modification by coping, age and perceived health. *Journal of Environmental Psychology*, 13, 353-363.
- Steinheider, B., Winneke, G. & Both, R. (1998). Die Erfassung der Geruchsbelästigung durch Tierstallimmissionen auf die Anwohner: Ein wirkungsbezogener Vergleich der Expositionserfassung durch Ausbreitungsrechnung und Rasterbegehung. *Gefahrstoffe - Reinhaltung der Luft*, 58 (10), 411-416.
- Steinheider, B., Both, R., & Winneke, G. (1998). Field studies on environmental odours inducing annoyance and gastric symptoms. *Journal of Psychophysiology*, Volume 12, Supplement 1, 64-79.
- Steinheider, B., Noack, R. Paulsen, R. & Kastka, J. (1989). Der Einfluß der Zeitstruktur auf die Wirkung von Verkehrslärm. In: Deutsche Physikalische Gesellschaft (Hrsg.), *Fortschritte der Akustik - DAGA 1989*. Bad Honnef: DPG GmbH, 723-726.

- Steinheider, B., Fay, D., Hilburger, T., Hust, I., Prinz, L., Vogelgesang, F. & Hormuth, S.E. (1999). Soziale Normen als Prädiktoren von umweltbezogenem Verhalten. *Zeitschrift für Sozialpsychologie*, 30 (1), 40-56.
- Ulich, E. (1989). Arbeitspsychologische Konzepte der Aufgabengestaltung. In S. Maas & H. Oberquelle (Hrsg.), *Software-Ergonomie '89: Aufgabenorientierte Systemgestaltung und Funktionalität* (S. 51-65). Stuttgart: Teubner.
- Winneke, G., Neuf, M. & Steinheider, B. (1996). Separating the impact of exposure and personality in annoyance response to environmental stressors, particularly odours. *Environment International*, 22, 73-81.