Helen Fischer

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Complex Adaptive Systems Group
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Education and Employment

From 04/2019
: Postdoctoral researcher at The Stockholm Resilience Centre, Stockholm, Sweden, Complex Adaptive System group. Funded through a Fellowship from the German Research Foundation (DFG).

04/2016-03/2019
: Postdoctoral research associate at the chair for General Psychology, Heidelberg University.

04/2016-02/2018
: Postdoctoral researcher at the Heidelberg Institute of Public Health, Climate Change and Health group

11/2014-03/2016
: Research Associate in the interdisciplinary project (Behavioral Economics and Psychology) *Self-regulation of common property resources: Cognitive prerequisites for system sustainability*

2016
: PhD in Psychology received from Heidelberg University. Thesis on the cognitive mechanisms of understanding complex systems, and predicting non-linear processes. Particular focus on the example of climate change. Title of dissertation: *Understanding Dynamic Systems and Non-Linearity.*

09/2013-10/2014
: Research Associate Cognitive Psychology, Heidelberg University.

01/2011-08/2013
: Research Associate at Heidelberg University in the interdisciplinary (Behavioral Economics and Cognitive Psychology) BMBF-project CLIMAGE: *climate change in aging societies.* Focus on understanding of complex systems and non-linear developments

Fellowships and Awards

2019
: Admission and travel stipend, Summer Institute Bounded Rationality in the Digital World, Max Planck Institute for Human Development (MPIB), Berlin

2018
: Research Fellowship for one-year postdoctoral visit at Stockholm Resilience Centre, DFG

2018
: Travel stipend, University of Missouri and National Science Foundation ($950) for International Workshop and Symposium on Probabilistic Specification and Quantitative Testing of Decision Theories

2018
: Travel stipend, Risk and Uncertainty Conference, University of Amsterdam, Heidelberg Centre for the Environment (HCE)

2018
: Fellowship, *Zukunfstkolleg* at Heidelberg Centre for the Environment

2016

Stipend to conduct research at 22nd United Nations Framework Convention on Climate Change (COP22) in Marrakesh, HCE

2010

Shortlist for Weinert-Preis (Best Diploma Thesis at Institute for Psychology, Heidelberg)

2005

1st Poster Prize, Institute for Psychology, Heidelberg

Grants

[1] HCE (2018): Influence of Confirmation Bias and Openness on the Emergence of Echo Chambers and Belief Polarization in the Context of Climate Change

[2] ZUK 5.4 Scientific Computing (2018): Influence of Objective and Subjective Understanding of Functional Relationships on Making Predictions and Decisions in the Domain of Climate Change

[3] ZUK 5.4 Scientific Computing (2018): Influence of Objective and Subjective Understanding of Functional Relationships on Making Predictions and Decisions in the Domain of Climate Change

[4] FRONTIER (2017) (Exzellenzinitiative Heidelberg: "Realizing the Potential of a Comprehensive University"): An Agent-based Modeling Approach to Information Spread in Filter Bubbles

[5] Field of Focus 4 (2016): Self-regulation of common property resources: Using Agent-Based Modeling for Exploration of the Influence of Working Memory Capacity in CPR Dilemmas

[6] ZUK 5.4 Scientific Computing (2016): Situational and personal factors that contribute to a better understanding of climate change

[7] Field of Focus 4 (2016): Self-regulation of common property resources: Working memory capacity – Can there be too much of a good thing?

[8] Field of Focus 4 (2014): Self-regulation of common property resources: Cognitive prerequisites for system sustainability.

Publications

***Fischer, H.,** Amelung, A. & Said, N (2019). The accuracy of German citizens' confidence in their climate change knowlegde. *Nature Climate Change*.

*Amelung, D.[1], **Fischer, H.**[1] , Herrmann, A., Aal., C., Louis, V., Bacher, H., Wilkinson, P. & Sauerborn, R. (2019). Human health as a motivator for climate change mitigation: results from four European high-income countries. *Global Environmental Change.* [1] **shared first authorship.**

*Dubois, G., Sovacool, B., Aall, C., Nilsson, M., Barbier, C., Herrmann, A., ... **Fischer, H**.,…& Sauerborn, R. (2019). It starts at home? Climate policies targeting household consumption and behavioral decisions are key to low-carbon futures. *Energy Research & Social Science*, *52*, 144-158.

*Watts et al (2018). The 2018 Report of the Lancet Countdown on Health and Climate Change. *The Lancet.*

***Fischer**, H., Schütte, S., Depoux, A., Amelung, D. & Sauerborn, R. (2018). How well do COP22 attendees understand graphs on climate change health impacts from the fifth IPCC assessment report? *International Journal of Environmental Research and Public Health.*

*Herrmann, A., **Fischer, H.**, Amelung, D., Litvine, D., Aall, C., Andersson, C.,Baltruszewicz, M, Barbier, C., Bruyère, S., Bénévise, F., Dubois, G., Louis, V., Nilsson, M., Richardsen Moberg, K., Sköld, B. & Sauerborn, R. (2017). Household preferences for reducing greenhouse gas emissions in four European high-income countries: Does health information matter? A mixed-methods study protocol. *BMC Public Health*, 18(1), 71.

***Fischer**, H. & Holt, D.V. (2016). When high working memory is and is not beneficial for predicting non-linear processes. *Memory & Cognition.* doi:10.3758/s13421-016-0665-0

*Amelung, D., **Fischer**, H., Kruse, L. & Sauerborn, R. (2016). Defogging climate change communication: How cognitive research can promote more effective climate communication. *Frontiers in Psychology.*

*Herlihly, N., Bar-Hen, A., Verner, G., **Fischer**, H., Sauerborn, R., Depoux, A., Flahault, A. & Schütte, S. (2016). Climate Change and Human Health: Where Are The Research Trends? A Scoping Review Protocol. *BMJ Open.*

*Hundertmark, J., Fischer, A., Holt, D., Said, N. & **Fischer**, H. (2016). System structure and cognitive ability as predictors of performance in dynamic system control tasks. *Journal of Dynamic Decision Making,* 1(1).

***Fischer**, H. & Gonzalez, C. (2015). Making sense of dynamic systems: How our understanding of stocks and flows depends on a global perspective. *Cognitive Science*.

Fischer, H., Degen, C. & Funke, J (2015). Improving stock-flow reasoning with verbal formats. *Simulation & Gaming*.

Degen, C., Kettner, S.E., **Fischer**, H. , Lohse, H., Funke, J., Schwieren, C., Goeschl, T. & Schröder, J. (2014). Comprehension of climate change and environmental attitudes across the lifespan. *Zeitschrift für Gerontologie und Geriatrie.*

Publications in peer-reviewed proceedings

Fischer, H., Kapmeier, F., Tabacaru, M., Kopainsky, B. (2015). *The more you see the less you "get": On the importance of a higher-level perspective for understanding dynamic systems.* Proceedings of the 33rd International Conference of the System Dynamics Society.

Fischer, H. & Degen, C. (2012). *Stock-flow failure can be explained by the task format*. In E. Huseman & D. Lane (Ed.), **Plenary talk**. Proceedings of the 30th International Conference of the System Dynamics Society (p. 42). Oxford, UK: Wiley-Blackwell.

Tabacaru, M., **Fischer**, H. & Said, N (2014). *Do People Possess a Global and Ordinal Understanding of Accumulation? An Experimental Study.* Proceedings of the 32nd International Conference of the System Dynamics Society (p. 81). Oxford, UK: Wiley-Blackwell

Invited talks

Fischer, H. (2019). *Human health as a motivator for climate change mitigation: results from four European high-income countries*. Talk held at Malta Legal Forum 2019, Singapore.

Fischer, H. (2018). *Understanding scientific information on climate change health impacts*. Talk held at Malta Legal Forum 2018, Bruges, Belgium.

Fischer, H. (2017). *How understandable are graphs in the IPCC reports? Evidence from the COP22 in Marrakesh*. Talk held at the Heidelberg Center for the Environment.

COP22 Delegation of Heidelberg University (2016). *COP of action? The UN Climate Change Conference in Marrakesh.* Talk held at the Heidelberg Center for the Environment.

Fischer, H. (2015). *Lost in Translation: the particular challenges in communicating future risks in climate change*. Talk held at the Institute of Epidemiology, University Hospital, Heidelberg, Germany.

Fischer, H. (2015). *Understanding Dynamic Systems and Non-Linearity. T*alk held at the colloquium social psychology, Institute of Psychology, Heidelberg, Germany.

Fischer, H. & Gonzalez, C. (2015). Our understanding of dynamic systems depends on the way we "see" them. Talk held at the demadyn 15 in Heidelberg, Germany.

Invited Essays

Fischer, H., Amelung, D. & Said, N (2020). Confidence in climate change knowledge. Magazine of the Euopean Association of Environmental and Resource Economists. https://www.eaere.org/wp-content/uploads/2020/01/EAERE-Magazine-n.8-Winter-2020.pdf

Science Communication

Member of *Researcher Desk, Stockholm.* Talks on the psychology of climate change decision-making, and climate change communication at schools to 15-18 year old students.

Selected conference contributions

Said, N., Fieberg, D., **Fischer H.**, Potschka, A., & Kirches C. (2019). Understanding Belief Polarization - An Agent-Based Modeling Approach. Talk at the *European Mathematical Psychology Group (EMPG2019)*, Heidelberg University.

Said, N., Fieberg, D., **Fischer H.**, Potschka, A., & Kirches C. (2018). An agent-based modeling approach to information spread in filter bubbles. **Talk** at the *European Mathematical Psychology Group(EMPG2018)*, University of Genova.

Fischer, H. (2018). Science meets policy-makers: Assessing the comprehension of IPCC graphs on climate related health risks. **Talk** held at the Risk and Uncertainty Conference, Amsterdam.

Said, N**.**, Fieberg, D., **Fischer** H., Potschka, A., & Kirches C. (2018). An agent-based modeling approach to information spread in filter bubbles. **Talk** at the *European Mathematical Psychology Group (EMPG2018)*, University of Genova.

Said, N., Fieberg, D., **Fischer** H., Lohse, J., & Kirches C. (2018). How does Working Memory Capacity influence Extraction Behavior in CPR Dilemmas? - An Agent-Based Modeling Approach. **Talk** at the *Tagung experimentell arbeitender Psychologen(TeaP2018)*, Marburg University.

Fischer, H., Amelung D., & Said, N. (2017). The confidence-accuracy relationship in CC knowledge and understanding. **Poster** at *2017 SJDM Conference*, Vancouver, Canada.

Said, N., **Fischer, H.**, Amelung D., & Kirches C. (2017). Using Agent-Based Modeling for Exploration of the Influence of Working Memory Capacity in CPR Dilemmas. **Poster** presented at *MathPsych/ICCM 2017*, University of Warwick.

Fischer, H., Amelung, D., & Said, N. (2017).Climate Change and the problem with overconfidence: The difference between perceived and actual understanding. **Talk** at *Cambridge Risk and Uncertainty Conference (RUC)*, University of Cambridge.

Fischer, H. & Gonzalez, C. (2015, March). Our understanding of dynamic systems depends on the way we "see" them. **Talk** at at the demadyn 15 in Heidelberg, Germany.

Hundertmark, J., Fischer, A., Holt, D., Said, N. & **Fischer**, H. (2015, March). Predictors of control performance in simple dynamic tasks under variation of task salience. **Talk** at the demadyn 15 in Heidelberg, Germany.

Fischer, H. & Gonzalez, C. (2013, August). *Seeing the forest for the tress predicts accumulation decisions*. Poster presented at the 35th Annual Meeting of the Cognitive Science, Society, Berlin, Germany.

Fischer, H. & Gonzalez, C. (2013, May). *Global-local processing predicts decision-making in stock-flow systems*. **Poster** at the 25th Annual Convention of the Association for Psychological Science, Washington, D.C.

Teaching

2018-2019: Complex decisions relating to the environment and climate change
2015-2017: *The Psychology of Climate Change: Understanding, decision-making, and problem-solving*
2014: *Causality and Climate Change*.
2013: *Introduction to empirical research methods.*
2012: *Causality in the climate as a complex system—How do humans acquire causal understanding?*

PhD Supervision

Primary supervisor for Nadia Said, PhD in Psychology (submitted 08/2019) in interdisciplinary project between mathematical modeling and cognitive psychology.
Title of thesis: “Understanding Cognitive Processes Underlying Belief Polarization and Function-Learning: Experimental and Modeling Approaches”

Student Supervision

- *Graphische Darstellung von Stock-Flow Systemen: Auswirkungen einer veränderten Informrationsdarstellung auf das Verständnis*—BSc thesis, Carlotta Riesmeier
- *The role of subjective knowledge*: *Do we commit to more pro-environmental actions when we feel more knowledgeable?* –MSc tesis, Maria Doblinger
- *The effects of framing on climate*-friendly intention and behavior –BSc thesis, Annika Reicherter
- *Fighting Climate Change with Certainty*: Potential text-cased manipulations of confidence and its impact on climate change-related action and cognition – BSc thesis, Sorgenfrei, Walter
- *Science meets policymakers. Assessing the comprehension of IPCC graphs on climate-related health risks*—M.Sc thesis, Kilian Ramisch
- *The impact of direct feedback on overconfidence in knowledge regarding climate change*—BSc thesis, Julian Strauch
- *Managing renewable resources under cognitive constraints* – MSc thesis, Erika Riesebell
- *Thematische Präferenzen zur Reduzierung von CO2-Emissionen in Abhängigkeit von soziodemographischen Variablen in europäischen Haushalten* – MSc thesis, Alexandra Aldoshina
- *Implicit and explicit learning in systematically varied dynamic system control tasks* – MSc thesis, Jan Hundertmark
- *Die Abweichung des individuellen vom durchschnittlichen CO2-Fußabdruck als Prädiktor zur Umsetzung emissionresduzierender Maßnahmen* – BSc thesis, Seval Akbal
- *Komplexe Problemlösung--der Spiegel meiner Persönlichkeit* – BSc thesis, Semantha Ebert
- *Kommunikation klimabezogener Daten mittels Graphen* – BSc thesis, Maria Doblinger

Reviews

Nature Climate Change, Cognition, Cognitive Science, Journal of Environmental Psychology, Environmental Communication, Frontiers in Psychology, Journal of Dynamic Decision Making, System Dynamics Review, Annual Meeting of the System Dynamics Conference, Annual Meeting of the Society of Judgment and Decision Making