



Johannes Riquel (Autor)

**On the Design of Service Interaction with
Conversational Agents**

Understanding Users' Affective, Cognitive, and Behavioral
Responses to Imperfections



Göttinger Wirtschaftsinformatik

Herausgeber: J. Biethahn • L. M. Kolbe • M. Schumann

Johannes Riquel

**On the Design of Service Interaction
with Conversational Agents**

Understanding Users' Affective, Cognitive,
and Behavioral Responses to Imperfections

Band 115



Cuvillier Verlag Göttingen

Internationaler wissenschaftlicher Fachverlag

<https://cuvillier.de/de/shop/publications/8669>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

Table of Contents

List of Figures	iv
List of Tables	v
List of Abbreviations	vii
A. Foundation	2
I. Introduction.....	2
I.1 Motivation	2
I.2 Research Gaps.....	5
I.3 Structure of this Thesis	10
I.4 Research Positioning and Design.....	13
I.5 Anticipated Contribution.....	17
II. Research Background.....	20
II.1 Human-Computer Interaction	21
II.2 Conversational Agents in the Context of Service Systems	22
II.3 Human-like Design of Conversational Agents	26
II.4 Conversational Agent's Imperfection and Service Perception	29
II.5 Toward an Understanding of Human-like Design of (Imperfect) Conversational Agents in Services	32
B. Studies on the Design of Conversational Agents and Imperfections	35
I. Assessing the Status Quo	36
1. Study 1: Conversational Agents in Service Context: Toward a Classification of Human-like Design Expectations	37
1.1 Introduction.....	38
1.2 Related Work.....	39
1.3 Research Approach	42
1.4 Results.....	45
1.5 Discussion	52
1.6 Conclusion.....	55
II. Understanding Conversational Agents with Human-like Errors	56
1. Study 2: Is Making Mistakes Human? On the Perception of Typing Errors in Chatbot Communication	57

1.1	Introduction	58
1.2	Research Background	59
1.3	Research Model and Hypotheses	62
1.4	Research Design	64
1.5	Results	69
1.6	Discussion and Implications.....	72
1.7	Conclusion	73
III.	Understanding Imperfect and Human-like Designed Conversational Agents.....	74
1.	Study 3: “Even the Wisest Machine Makes Errors” – An Experimental Investigation of Human-like Designed and Flawed Conversational Agents .	75
1.1	Introduction	76
1.2	Research Background and Related Work.....	78
1.3	Service Satisfaction and Human Emotions	80
1.4	Hypotheses Development.....	82
1.5	Perceived Humanness, Emotions, and Service Satisfaction.....	84
1.6	Methodology	85
1.7	Measures	88
1.8	Results	91
1.9	Discussion	94
1.10	Conclusion	97
2.	Study 4: “F*** You!” – An Investigation of Humanness, Frustration, and Aggression in Conversational Agent Communication	98
2.1	Introduction	99
2.2	Research Background and Related Work.....	101
2.3	Research Model and Hypotheses Development.....	104
2.4	Method.....	108
2.5	Results.....	113
2.6	Discussion	116
2.7	Conclusion	118
C.	Contributions	121

I.	Findings and Synthesis	122
I.1	Findings of Research on the Status Quo of Conversational Agent Design Expectations	122
I.2	Findings of the Research on Human-like CA Errors	124
I.3	Findings of the Research on Human-like Designed Imperfect CAs	126
I.4	Synthesis of Findings.....	130
II.	Implications and Limitations	141
II.1	Implications for Research	141
II.2	Implications for Practice.....	144
II.3	Limitations	148
III.	Concluding Remarks	150
	References	153
	Appendix.....	xi
Appendix A.	Overview of the Contributions in the Studies of this Thesis	xi
Appendix B.	Overview of Further Published and Submitted Studies on Conversational Agents (only VHB ranked).....	xii
Appendix C.	Overview of Further Published and Submitted Studies (only VHB ranked).....	xiii
Appendix D.	Curriculum Vitae	xiv