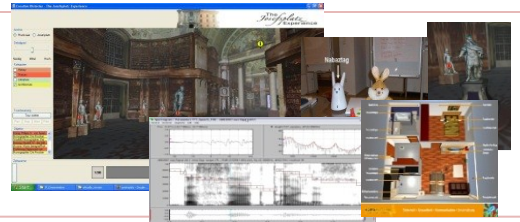


Exploring Gender Effects in Artificial Companions

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The degree an artificial entity resembles a human correlates with the likeliness that the entity will evoke social and psychological processes in humans, see e.g. [1].

Overall Goal: Investigate how people deal with interactive artifacts and whether there is a difference between men and women. Develop a blueprint for the design of gender-sensitive artificial companions.

We have approached the overall goal with a series of exploratory studies assessing

- requirements for a Smart Home Companion
- gender effects when communicating with animated virtual agents showing pos., neg., and neut. communication attitudes
- the social evaluation of synthesized language varieties

Studies

Smart Home Companion (SHC)

System: smart home environment (incl. Nabaztag & toy rabbit)

Users: 7 (2 ♀, 5 ♂), Austrian, age: 64-72

Method: brainstorming type dialogues

Analysis: qualitative content analysis



Results

Focus group acknowledges importance of SHC – not for themselves but for other elderlies. SHC functionalities were derived through analogies from existing applications (e.g. mobile phones). SHC's appearance was secondary.

Communicating with an affective chat bot

System: chat bot showing positive, negative, and neutral communication attitudes

Users: 91 (33 ♀, 58 ♂), Polish, age: 18-52

Method: dialogues conducted in English, questionnaire

Analysis: dialog acts, LIWC categories, Mann-Whitney U test

For a detailed review on gender differences in language use see [2].

Results (highly significant)

- Questionnaire: male users feel emotionally more connected to the neut. and the neg. companion

Neutr. System		Pos. System		Neg. System	
♀	♂	♀	♂	♀	♂
Verbs	Hear	I	Discrep	I	Space
Present	Prep	Sexual	Leisure	Funcnt	Prep
Health		Assent		Negate	Achiev
				AuxVB	
				Adverb	
			Words	Reject	Statement
			ynQuestions	nAnswer	

Figure1: This figure shows highly significant differences in LIWC categories (verbs, present, health, hear etc.) and dialog acts (words, ynQuestions, reject, nAnswer etc.). Females and males differ most wrt LIWC categories and dialog acts when communicating with the neg. companion

A language attitude study using synthetic voices

System: employing 3 Austrian German language variants (male standard Austrian voice, female colloquial Viennese, male dialectal Viennese) for a disembodied tour guide in a 3D cultural heritage application

Users: 50 ♀, Austrian & German, age: 18-46

Method: semantic differential and open questions

Analysis: ANOVAs and qualitative content analysis

For a study on gender differences in the evaluation of male and female voices of robots, see e.g. [3].

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Results (highly significant)

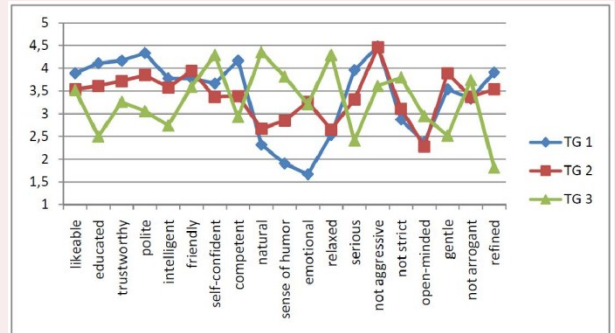


Figure2: All three variants (TG1 – standard Austrian variant, TG2 – colloquial Viennese variant, TG3 – dialectal Viennese variant) are perceived as equally likeable, friendly, and not arrogant.

Differences: TG1 is evaluated as most educated, trustworthy, polite, competent, serious and refined. TG3 is evaluated as most self-confident, natural, relaxed, open minded, not strict, and with a sense of humor. TG2 equals the dialectal Viennese variant wrt. sense of humor and emotionality. The different voices and varieties transport different persona characteristics. Overall, results from language attitude studies using natural voices (see e.g. [4]) were replicated with synthetic voices.

Towards a gender-sensitive design of companions

Appearance

- Functionality prior to appearance

Social aspects of communication

- Required: recognize, simulate, and adapt to different dialog styles
- Male and female users react differently to the companion's affective communication attitude.
- Voices of artificial companions are interpreted socially (evaluation of language variants and persona effects).

References

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