

Personalising the Dialogue of Relational Agents for First-Time Users

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INTRODUCTION

Relational agents are “computational artifacts designed to build long-term, social-emotional relationships with their users” [1]. One way this can be achieved through verbal communication is the use of relational cues (RCs) [2] (see Table 3).

In this poster we focus on personalisation of the relational agent’s dialogue based on the user’s perception of the helpfulness of the cues. We present our approach for providing an empathic response by personalising the conversation of a virtual advisor who provides study tips to an individual the agent has never met before.

RESEARCH QUESTIONS

RQ1. Does asking user RC preferences prior to interaction match RC preferences after interaction in the Adaptive group?

RQ2. Does the empathic (all RCs), neutral (no RCs), or adaptive (mix of empathic/neutral based on preferences) dialogue result in fewer discrepancies/more matches between relational cues received versus cues identified as helpful?

METHODOLOGY

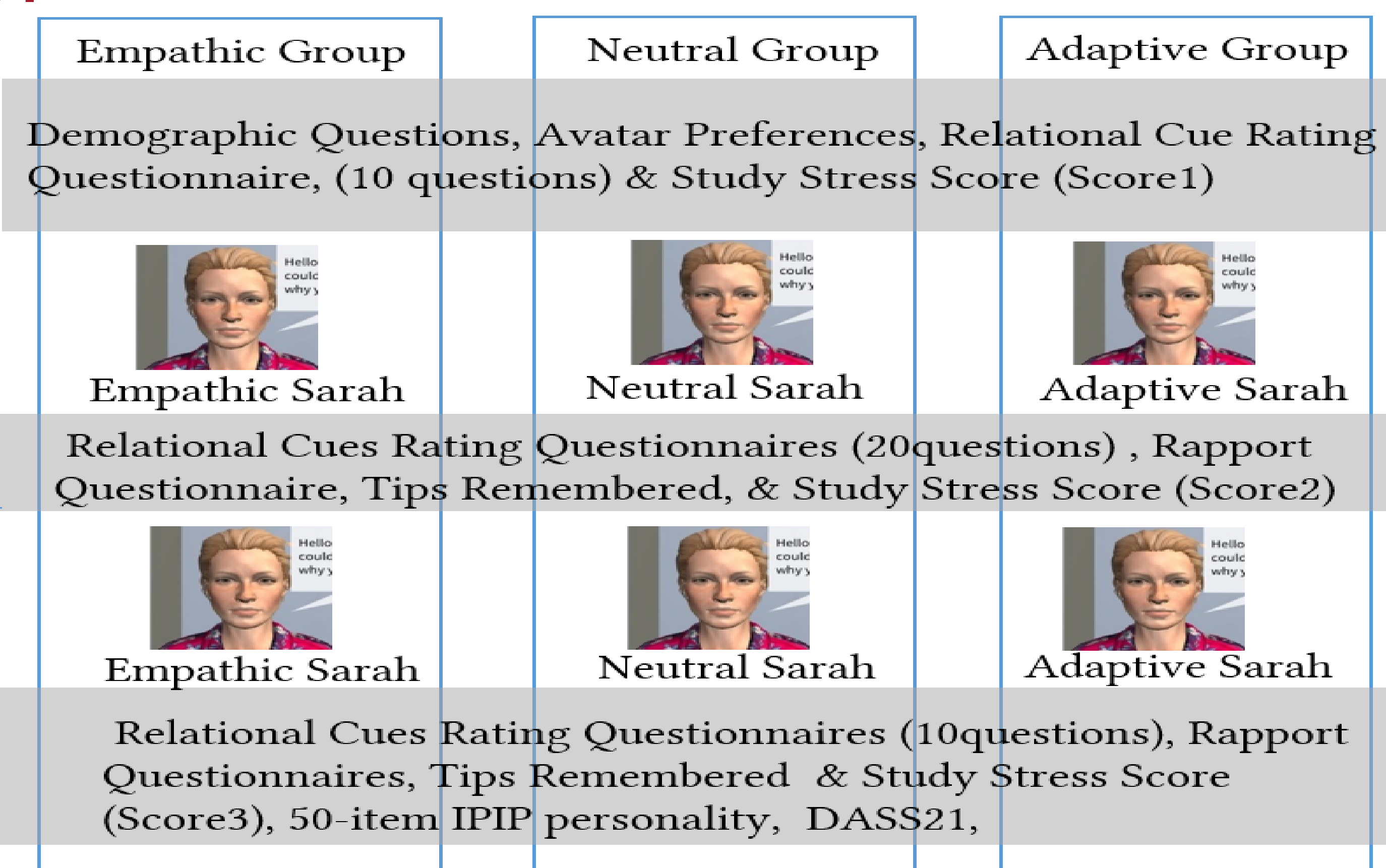


Figure 1. The Between-Subject Design

RESULTS

Table 1. Gender Distribution in each group

Groups	Female		Male		Other		Total	
	%	N	%	N	%	N	%	N
Empathic	31	22	29	11	100	1	31	34
Neutral	28	20	45	17	0	0	33	37
Adaptive	42	30	26	10	0	0	36	40
Total	100	72	100	38	100	1	100	111

Table 2. Matches between the RCs students received and found helpful

Group	0-3		4-7		8-10		Total
	%	N	%	N	%	N	
Empathic	4	12	12	35	18	53	234
Neutral	22	59	14	38	1	3	126
Adaptive	1	3	12	30	27	68	326
Total	27	24	38	34	46	111	

Table 3. Total frequency (out of N=111) for RCs identified as helpful: S1=survey1, S2=survey2, diff=S1-S2

RC	Survey Sample Sentence	S1	S2	Diff
Social Dialogue	I hope you enjoyed your break. Ok, let’s talk about more tips.	75	63	12
Meta-relational	Let’s talk about socializing which is good for our mental health.	74	77	-3
Empathic	I think you will feel less stress after I give you some study tips.	51	63	-12
Humour	Sometimes we can get stuck. Look at me stuck inside this machine.	54	54	0
Continuity behaviours	Hey, my name is Laura. I’m very happy to meet you and hope you’ll find our session together worthwhile.	84	84	0
Self-disclosure	I want to tell you some tips I’ve learnt from personal experience and from some of my friends.	80	71	9
Mutual knowledge	Did you also know that 60 minutes of study during the day is the equivalent of 90 minutes of study at night?	90	82	8
Mirroring	Same as me.	79	81	-2
Politeness	I hope you don’t mind me asking, but do you exercise regularly?	63	60	3
Inclusive pronouns	Together we can embrace difference!	79	70	9

CONCLUSION & FURTHER WORK

- In the Adaptive group (personalized dialogue), there were no significant differences between what students found helpful before and after interaction for 18 out of 20 RCs.
- In the personalised dialogue, students found the RCs they received more helpful than the other groups (and matching with preferences), while neutral conversation had the greatest number of discrepancies.
- Future work could also analyse if some cues are more likely to be preferred together. If an unexpected response was received, one or more alternative examples could be provided to confirm the preference.
- An alternative to populating user preferences from a survey is to have the virtual advisor ask the user as part of a ‘getting to know you’, rapport building-phase.
- Another approach is machine learning based on previous user’s preferences (if available). However, our results using models trained on 376 prior participants showed high mismatch rate with predicted and preferred RCs when used to adapt dialogue for 59 new participants [3].