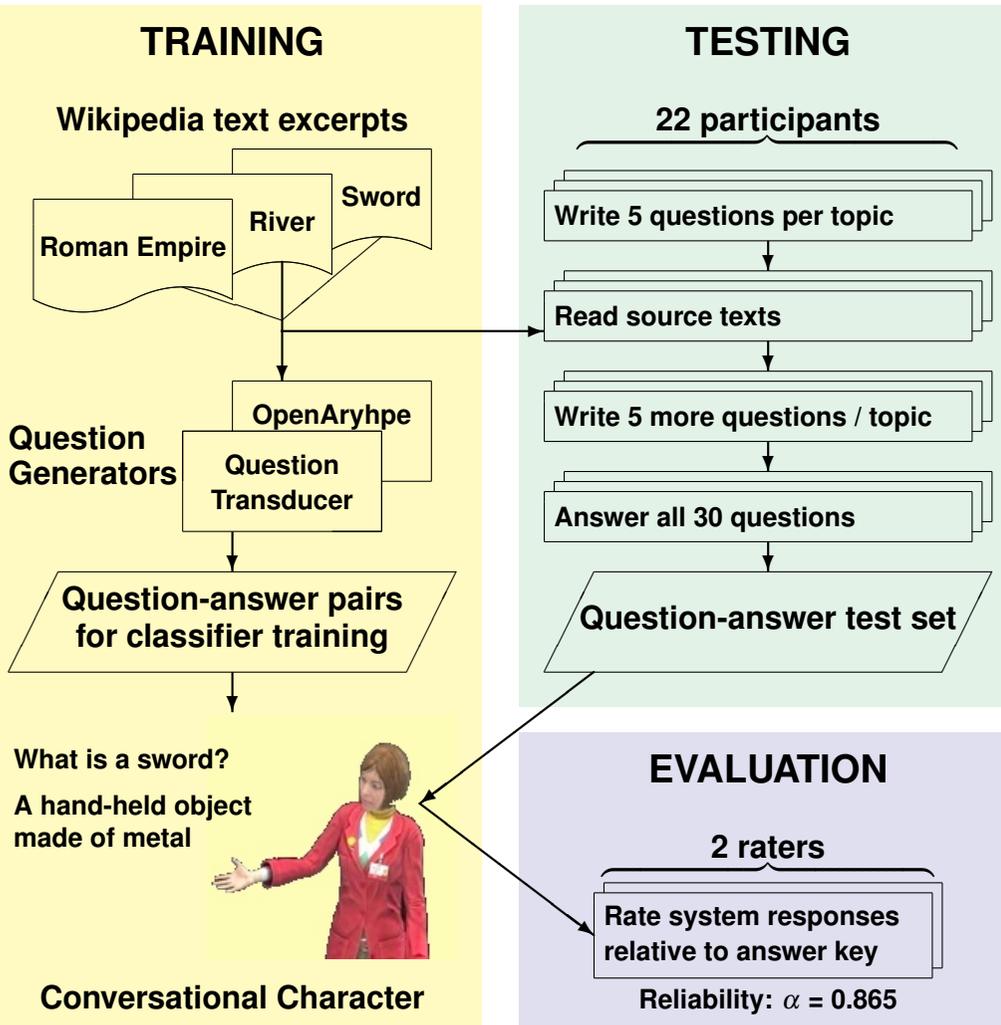


Method: Create conversational characters from text excerpts using question generation tools

- Question-answering characters trained on linked question-answer pairs
- Manual authoring of knowledge base is expensive and time-consuming
- Populate knowledge base with question-answer pairs extracted from text
- Test on questions and answers collected from users



Results: 4-way ANOVA mean rating on scale 0–2

Question type

Question type	N	%	Rating
What	363	55	0.70
Yes/No	59	9	0.27
Who	50	8	1.15
When	46	7	0.79
Where	46	7	0.54
How much	45	7	0.53
How	39	6	0.22
Why	9	1	0.11
Other	3	0	1.33

$$F(8,592) = 6.5, p < 0.001$$

Who+when = 32% of questions about Roman Empire, 0% about River

Question source

Question source	N	%	Rating
Before reading	330	50	0.34
After reading	330	50	0.95

$$F(1,592) = 53, p < 0.001$$

Questions authored after reading share more vocabulary with texts

Answer availability

Answer availability	N	%	Rating
Available	489	74	0.82
Not available	171	26	0.15

$$F(1,592) = 106, p < 0.001$$

Topic

Not significant: $F(2,592) = 2.8, p = 0.06$

Interactions

Interaction	df	F	p
Q.type x topic	14,592	3.6	< 0.001
Q.type x avail	7,592	2.1	0.04

Discussion

Approach is viable

Automatically generated characters give a partial or complete answer to 43% of all questions, and to 53% of questions with an available answer in the text.

Room for improvement

Could do better on questions with available answers

Gap between vocabularies of user questions and source texts

Future directions

Combine multiple source texts

Use question generation to augment existing hand-authored character

Use internal confidence scores to judge response quality

Test characters in live interaction

Journal article under review

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