The role of social cognition in collaborative learning in healthy older adults.

Citation for published version:
Crompton, C, Wolters, MK & MacPherson, SE 2016, 'The role of social cognition in collaborative learning in healthy older adults.' 13th World Federation for NeuroRehabilitation Special Interest Group in Neuropsychological Rehabilitation Conference, Glasgow, United Kingdom, 11/07/16 - 12/07/16.

Link:
Link to publication record in Edinburgh Research Explorer

Document Version:
Publisher's PDF, also known as Version of record

General rights
Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.
The role of social cognition in collaborative learning in healthy older adults

Catherine J. Crompton a, Maria K. Wolters b & Sarah E. MacPherson a

a Human Cognitive Neuroscience, Department of Psychology, University of Edinburgh, b School of Informatics, University of Edinburgh.

Introduction
Learning and memory abilities decline in healthy ageing. Learning collaboratively with a familiar partner may improve older adults’ learning performance. We examined older adults’ learning with familiar and unfamiliar partners, and with perceived Human and Computer partners. The study aim was to determine whether better social abilities underlie more efficient learning with different learning partners.

Method
Study 1
Participants: 24 older (mean = 68.68 years, SD = 7.19) adults.
Participants completed the task in pairs, once with a familiar partner and once with a stranger.
Each pair had a Director and Matcher. The Director’s set of tangrams were arranged in a specific order, which was communicated to the Matcher. Pairs work together to create and learn referential labels, and interaction becomes more efficient.

Study 2
Participants: 24 older (mean = 70.46 years, SD = 7.34) adults.
Participants completed a similar task with a Wizard of Oz computer program assuming the role of Director.
“Human” condition: participants told communicating with a Research Assistant in the next room, and the program used natural speech recordings. Deception was successful.
“Computer” condition: participants heard the same instructions in a synthetic speech voice.

Social cognition was assessed using Reading the Mind in the Eyes5, Ekman Faces6, Visual Perspective Taking6 (Study 1), Judgment of Preferences8 (Study 1) and Theory of Mind Stories7 (Study 2).

Study 1

Figure 1: Unfamiliar participants complete the Study 1 task.

Study 2

Figure 2: Tangled,virtual used in Studies 1 and 2.

Social cognition was assessed using Reading the Mind in the Eyes5, Ekman Faces6, Visual Perspective Taking6 (Study 1), Judgment of Preferences8 (Study 1) and Theory of Mind Stories7 (Study 2).

Nine trials were completed in each condition collapsed into three trial bins.

Results
Speed of learning was measured using time to complete the task and the number of interactive turns taken.

Study 1

Figure 3: Reading the Mind in the Eyes example trial used to assess social cognition in Study 2.

Figure 4: Mean and standard error for time to complete the task with familiar and unfamiliar partners.

Figure 5: Social cognition predicts time to complete with unfamiliar, but not familiar partners.

Delayed Recall
After 1 hour, participants recalled the labels for shapes described to them by a “human” partner more accurately than those described to them by a “computer” partner ($X^2 (1, N=22)=6.58$, $p < 0.05$).

Social cognition did not predict delayed recall accuracy in either the human or computer condition.

Conclusions
Familiarity does not differentially affect learning – older adults learn with comparable efficiency with familiar partners and strangers.
Learning with a computer system is more efficient and effective if participants are told that the computer system is a human being.
Social cognition predicts efficiency of interaction in early trials with unfamiliar partners, and perceived human partners.
Social cognition predicts interaction with perceived human partners, but does not predict recall accuracy.

References

Further information
We are now conducting the same studies using a route learning task based on the Map Task paradigm to explore whether these effects are task specific or generalise to other learning and memory paradigms.
email: catherine.crompton@ed.ac.uk