Remembering and Knowing:
Using another's subjective report to dissociate Knowing and Familiarity

Helen L. Williams[1,2] and Chris J.A. Moulin[3]

[1]University of Victoria [2]University of Richmond [3]Université de Bourgogne

Contact: helenw@uvic.ca

Background

- Interpretation of K responses = "The most vexatious problem in the Remember-Know paradigm" (Gardiner & Richardson-Klavehn, 2000, p. 284).
- In the RK paradigm, whether a Know response is defined as a high-confidence state of certainty or a low-confidence state based on familiarity varies across researchers (Geraci et al., 2009) and influences participants' responses (McCabe & Geraci, 2009; Rotello et al., 2005).
- Some researchers have separated Know and Familiar states of awareness in recognition experiments (e.g., Conway et al., 1997; Dewhurst et al., 2009).
- Our paradigm = Ps in the role of 'memory expert'. Task is to categorize others' memory experiences in terms of subjective experience categories of Remember, Know, Familiar, and Guess.
- Previously we have demonstrated that participants can reliably differentiate between memory experiences justifying Know- and Familiar-based recognition both in terms of confidence and other inherent differences (Williams, Conway, & Moulin, 2012).
  - ⇨ Aim = To examine how people understand others' memory reports in terms of subjective experience when the confidence associated with those reports is manipulated.
  - ⇨ Aim = To extend findings from Williams et al. (2012) to modified stimuli (without critical terms present) and to different manipulations of confidence.

Method: *Internet-based Questionnaires*

Questionnaire stimuli

- Items were 270 memory reports provided by participants in Gardiner et al. (1998).
- Items selected on the basis of confidence rating (Williams et al., 2012, Exp. 1).
- Original Know items separated into Know and Familiar by HLW and CJAM.
- Experiment 1 = High, Medium, and Low confidence items used as stimuli.
- Experiment 2 = Medium confidence items paired with appropriate or inappropriate confidence values.

Instructions to respondents

- These statements are justifications made by participants in an Old/New recognition test of a previous experiment. For each word recognised, the participant had been asked to justify their response – they had been asked *why* they thought they recognised that word.
- Participants task was to assign each item to a category of subjective experience.

Data collection

- Questionnaire posted on national and international psychology interest websites, sent to email lists, advertised on undergraduate participation site.
- Experiment 1 *N* = 383. Experiment 2 *N* = 251. (Full data sets obtained).

Definitions of Remember, Know, Familiar, and Guess categories

Remember	For this item they had an experience of Remembering the word, this could have included seeing the word in their mind's eye, remembering what they thought or pictured when they saw the word on the original list, and/or having a sense of themselves in the past. *For example, if you see someone on the street you may think 'who is that? Oh yes, I remember, I was in the chemist shop, it's the person I saw in the queue at the chemist, I remember thinking what a funny hat they had on…'*
Know	For this item they simply Know the word without any of the other feelings associated with vividly remembering that they had seen the word before. *For example, if you see someone on the street you may think 'who is that? Oh yes, it's my friend George, I know him really well…'*
Familiar	For this word the person had a feeling of Familiarity with the word and because of that they think that the word was on the previous list. *For example, if you see someone on the street you may think 'who is that? They look very familiar… I don't know where I know them from but they are definitely familiar…'*
Guess	For this word the person had no feeling of familiarity or any other memories associated with the word and simply Guessed that the word was on the previous list.

Example stimuli

Previous stimuli (Williams et al. 2012, Exp. 2)

Sofa	A girl I know is called Sofia. When I saw the word yesterday it made me think of her
Hospital	I have also been to a hospital recently so that could be why the word is so familiar to me, but I believed it was there
Sauerkraut	I remembered it because it was an unusual word. I knew it was there
Rectangle	I think I saw this word (but maybe it was triangle!), I do not remember visualising a rectangle but I saw it

Modified stimuli: Experiment 1

Sofa	A friend is called Sofia. When I saw the word yesterday it made me think of her
Hospital	I have also been to a hospital recently so that could be why I think I saw this word, but I believed it was there
Sauerkraut	I recognised it because it was an unusual word, it was there yesterday
Rectangle	I think I saw this word (but maybe it was triangle!), I do not think I visualised a rectangle but I saw it

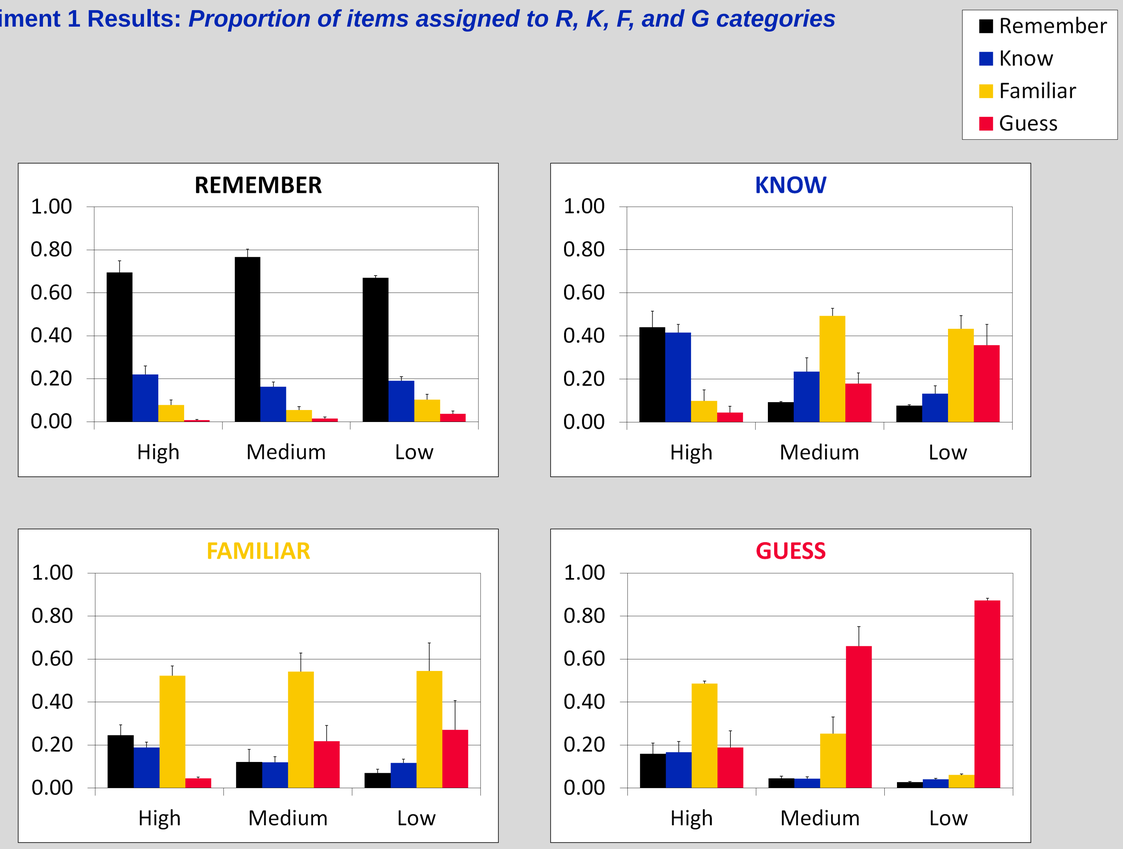
Previous stimuli (Williams et al. 2012, Exp. 3)

Harp	On Friday I was in a restaurant with a harpist. I remember thinking of that	55%

Modified stimuli: Experiment 2

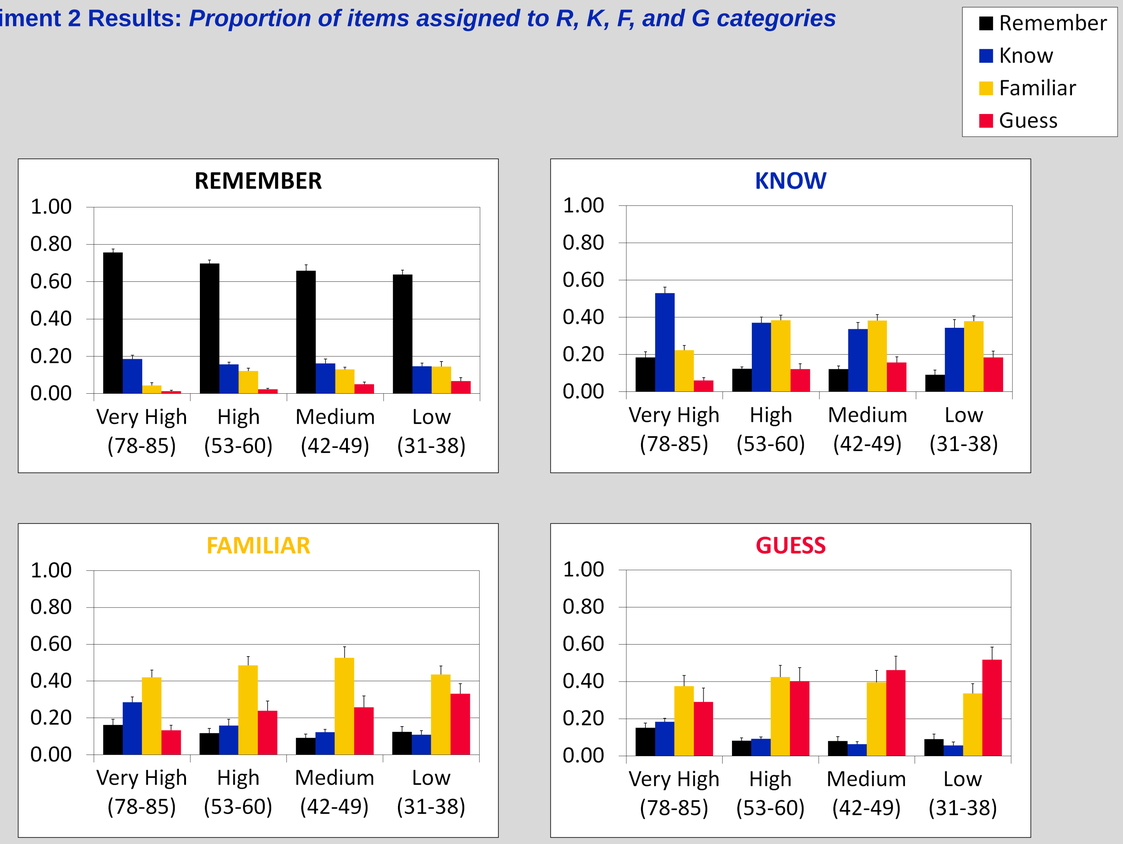
Plum	Yesterday it came up close to the word "ring". I recalled that. My confidence rating was 34%
Island	I'm 54% confident. It was like I had seen it but I was confused. I thought it was there but could not be sure
Piano	I said 37% confident because I recognized it because "musician" came up first and also I have a friend who plays the piano so I linked the two together

Experiment 1 Results: *Proportion of items assigned to R, K, F, and G categories*



- ⇨ Three-way interaction: Item type x Confidence level x Subjective experience response.
- ⇨ Remember items consistently appropriately categorised as Remember.
- ⇨ Familiar items consistently appropriately categorised as Familiar.
- ⇨ Assignment of Know and Guess items influenced by confidence level of the item:
  - ⇨ High confidence Know items assigned to Remember or Know. Medium and Low confidence Know items assigned to Familiar (or Guess).
  - ⇨ High confidence Guess items assigned to Familiar.
- ⇨ **Confidence influences interpretations of Know and Guess memory reports but not Remember and Familiar memory reports.**
- ⇨ *Replicates Williams et al. (2012) Exp. 2 with modified stimuli that do not include critical words.*

Experiment 2 Results: *Proportion of items assigned to R, K, F, and G categories*



- ⇨ No three-way interaction.
- ⇨ Remember items consistently appropriately categorised as Remember.
- ⇨ Know items consistently assigned to Know or Familiar (except when given Very High confidence values).
- ⇨ Familiar items consistently appropriately categorised as Familiar.
- ⇨ Guess items consistently assigned to Guess or Familiar.
- ⇨ **Ps did not take into account accompanying confidence value when categorising items to categories of subjective experience.**
- ⇨ *Same patterns as Williams et al. (2012) Exp. 3 where confidence was provided externally to the memory report.*

Overview of findings

- Confidence associated with memory reports only influences how those reports are interpreted by others in terms of subjective experience when the confidence is inherent in the description (Exp. 1), not when a confidence value is provided within the description (Exp. 2).
- Given this relationship, it seems difficult to suggest that confidence is merely the driving force behind subjective experience (cf. Dunn, 2004). Instead it is suggested that people use their natural understanding of memory experiences to determine that subjective experience is of more importance than confidence (Gardiner, 2001; Tulving, 1985).
- People are able to interpret others' memory experiences describing recognition based on experiential states of Remembering or Familiarity.
- Interpretation of memory experiences for Know and Guess recognition decisions are more greatly influenced by confidence – perhaps because Know and Guess items express *an absence of* recollection or familiarity respectively and thus confidence plays a larger role when these states of awareness are experienced, and when they are interpreted by others.
- Subjective experiences of Know and Familiar were differentially influenced by confidence manipulations – demonstrates validity of separation of these categories of subjective experience.

Acknowledgements and References

The authors would like to thank Steve Lindsay, Mike Masson, and Jane Berry for their help and advice in the interpretation of these data.

Conway, M.A., Gardiner, J.M., Perfect, T.J., Anderson, S.J., & Cohen, G.M. (1997). Changes in memory awareness during learning: The acquisition of knowledge by psychology undergraduates. *JEP:G, 126*, 393-413.

Dewhurst, S.A., Conway, M.A., & Brandt, K.R. (2009). Tracking the R-to-K shift: Changes in memory awareness across repeated tests. *Applied Cognitive Psychology, 23*(6), 849-858.

Dunn, J.C. (2004). Remember-Know: A matter of confidence. *Psychological Review, 111 (2),* 524-542.

Gardiner, J.M. (2001). Episodic memory and autonoetic consciousness: A first-person approach. *Philosophical Transcripts of the Royal Society of London B, 356,* 1351-1361.

Gardiner, J.M., Ramponi, C., & Richardson-Klavehn, A. (1998). Experiences of remembering, knowing, and guessing. *Consciousness and Cognition,* 7, 1-26.

Geraci, L., McCabe, D.P., & Guillory, J.J. (2009). On interpreting the relationship between remember-know judgments and confidence: The role of instructions. *Consciousness and Cognition, 18*, 701-709.

McCabe, D.P., & Geraci, L.D. (2009). The influence of instructions and terminology on the accuracy of remember-know judgments. *Consciousness and Cognition, 18*, 401-413.

Rotello, C.M., Macmillan, N.A., Reeder, J.A., & Wong, M. (2005). The remember response: Subject to bias, graded, and not a process-pure indicator of recollection. *Psychonomic Bulletin & Review, 12*, 865-873.

Tulving, E. (1985). Memory and consciousness. *Canadian Psychology, 26,* 1-12.

Williams, H.L., Conway, M.A., & Moulin, C.J.A. (2012). Remembering and Knowing: Using another's subjective report to make inferences about memory strength and subjective experience. Manuscript in revision.