

# 1 2014

## 1.1 October

Read Shon (2012) to help organise step up in quantity of reading required. Read around possible research topics proposed by Nick:

- Rumination and autonomous motivation for goal pursuit (Thomsen, Tonnesvang, Schnieber & Olesen, 2011; E. Watkins, 2008)
- Experience-sampling of rumination during everyday goal pursuit (N. Moberly & Watkins, 2010; E. Watkins & Nolen-Hoeksema, 2014)
- Rumination and autobiographical memory accessibility (Conway & Pleydell-Pearce, 2000; Schoofs, Hermans, Griffith & Raes, 2013; Debeer, Raes, Williams, Craeynest & Hermans, 2014)

Interested in ESM as a method. Met with Mahmood Javaid to chat about existing phone/web apps suitable for this type of study. Also interested in potential of counter-conditioning rumination. Identified and proposed the following as possible gaps to pursue:

- ‘there is a preponderance of research on RT with unconstructive consequences, which needs to be balanced by more research into the constructive aspects of RT. In particular, more prospective longitudinal studies and experimental studies are necessary to investigate the constructive consequences of RT, especially in the areas of cognitive processing and post-traumatic growth, where most of the evidence is still only cross-sectional’ (E. Watkins, 2008)
- ‘there have been few systematised attempts to account for the distinct constructive and unconstructive outcomes of RT (for initial suggestions’ (E. Watkins, 2008)
- ‘Future research will usefully assess RT using alternative questionnaires that do not confound RT with the degree of negative affect and that can capture other potentially relevant dimensions such as the duration, ability to control, and repetitiveness of RT.’ (E. Watkins, 2008)
- ‘Contrary to original predictions, the use of positive distractions has not consistently been correlated with lower levels of depressive symptoms in correlational studies, although dozens of experimental studies show positive distractions relieve depressed mood.’ (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008)

Proposed the following sketchy design ideas:

- Counter-conditioning adaptive/maladaptive rumination
  - ‘In sum, improvements in mood can temporarily reduce rumination by removing a potential cue for the habit. However, because of their conservative nature, habits are easily reactivated and do not change unless the S-R association itself is counter-conditioned.’ (E. Watkins & Nolen-Hoeksema, 2014)
  - Adaptive/maladaptive rumination (Joormann, Dkane & Gotlib, 2006)
- Abstract/Concrete Construal
  - Manipulate Abstract/Concrete thinking (E. Watkins, 2008)
  - Outcomes: goal progress/attainment, affect
- Brooding vs. reflection
  - Manipulate: Brooding/reflection (N. J. Moberly & Watkins, 2008)
  - Outcomes: AM specificity (Debeer, Hermans & Raes, 2009), negative affect (N. J. Moberly & Watkins, 2008)

- RST (Nolen-Hoeksema, 1991)
- Attribution of affect
  - Manipulate: attribution of affect (Clore & Huntsinger, 2007)
  - Outcomes: thoughts, mood

Looked at some methodological consequences of ideas which currently interest me:

- ‘such research requires behavioural, physiological, or observer-rated outcome measures that reduce the risk of constructive outcomes resulting from inaccurate, biased, or defensive self-reports.’ (E. Watkins, 2008)
- Csikszentmihalyi and Larson (1987)
- ‘attentional bias (Joorman et al., 2006), sustained pupil dilation to negative information (Siegle, Granholm, Ingram, & Matt, 2001; Siegle, Steinhauer, Carter, Ramel, & Thase, 2003), or sustained event-related fMRI amygdala activity in response to emotional words (Siegle, Steinhauer, Thase, Stenger, & Carter, 2002)’ (E. Watkins, 2008)

## 1.2 November

- Chose Tester-Jones (2014) as thought paper as a way into rumination literature and arranged meeting with Michelle to discuss her experiment 4.
- Roberts, Watkins and Wills (2013) also looks useful as a rumination induction procedure
- Losing faith in my prediction that repetitive thought can (easily) be moved from positive to negative objects. Without changing their repetitive nature, can negative repetitive thought processes be ‘redirected’ towards positive objects/goals? If so, does this elevate (trait) positive mood? (E. Watkins, 2008)
- Need to be careful to distinguish rumination from worry (E. Watkins, Moulds & Mackintosh, 2005; Nolen-Hoeksema et al., 2008)

## 1.3 December

Have focused on rumination as a topic. Early reading indicating a *lot* (RST, S-REF, goal progress theory) of partially overlapping definitions and corresponding self-report measures (Papageorgiou & Wells, 2004, p. 206). E. Watkins and Nolen-Hoeksema (2014) a promising source of questions linking (counter) conditioning to both RST and control theory. Also pointers to other ideas that might be tested experimentally e.g. counter-conditioning abstract thinking in negative rumination contexts.

Read E. Watkins and Nolen-Hoeksema (2014), Martin and Tesser (1996, Chapters 1, 10 (WBSI) and 9, which is a fairly brief summary and comparison of the main theories in chapters 6-8), Smith and Alloy (2009)

# 2 2015

## 2.1 January

- Scheduled a weekly meeting with Nick to add some structure and momentum!
- Nick kindly gave me feedback on my writing based on an essay I gave him to read.
- Explaining my understanding of the literature, my rationale and the gap I’m addressing to Nick helped clarify it for both of us and generated an additional, novel design element. I should have run this process sooner and repeatedly, but I feel like I have enough to write a proposal grounded in theory now.

- Have written draft proposal entitled “Can attentional training reduce rumination?”. A bit behind on reading required for 6/3/2015 deadline. Need to read the CBM and habitual behaviour literature with a view to identifying candidate tasks that might extinguish rumination. Worked out that I can use Zotero tags to communicate what I’ve read and am currently reading.
- Readings: (Koster, De Lissnyder, Derakshan & De Raedt, 2011), (Almeida et al., 2014) and a couple of papers on changing habits.
- Looked through slides from case-series workshop given at Exeter by Stephen Morley at Exeter. A bit opaque without being there.
- Nowhere near a design which makes email regarding first round of project funding somewhat moot.
- Attended MDC risk training session.

## 2.2 February

- Working on 2nd proposal draft.
- Analysis plan gradually becoming clear having found potential tools to run randomisation analysis (Bulté & Onghena, 2008), meta-analysis and effect sizes (Bulté & Onghena, 2013) and produce graphs (Bulté & Onghena, 2012).
- Basing procedure on MacLeod and Mathews (2012).
- Trying to find a suitable rumination measure/induction combination.
- Preparing for presentation of research (proposal).
- Read meta-analysis critical of CBM (Cristea, Kok & Cuijpers, 2015).
- University virtual machine options for hosting experiment too expensive, so planning to host externally. Wondering whether I can get permission to reuse the (Internet-delivered) dot-probe from See, MacLeod and Bridle (2009).

## 2.3 March

- Submitted proposal. Need to adjust proposed organisation of ideographic and negative word stimuli to effectively detect changes in each.
- Trying to determine number of participants needed. Stephen Morley advised that choosing appropriate N cases for meta-analysis is largely heuristic i.e. 4-6, and more = better. Onghena and Edgington (2005) very useful for deciding on individual case-series parameters (measurement times, transitions) and N cases for meta-analysis.
- Some uncertainty over whether participants will be sufficiently motivated to complete the necessary number of session. Have finalised that £20 per participant seems appropriate so emailing my case requesting £200 for the project.
- Felicity pointed me at OpenSesame for dot-probe development in a form that could be run by participants at home. Evaluating this against Mahmood’s recommendation of PsychToolbox or JavaScript.
- Trying to find a state rumination measure.
- Starting work on method. MRC psycho-linguistics DB missing valence and arousal data so looking for other data sources for words e.g. Citron, Weekes and Ferstl (2014). Need to do some C programming to get MRC tool suite working! Subsequently decided it was easier to get words into a (MySQL) database. More programming! Looks like 1250ms is an appropriate stimulus duration. Planning procedure for generating ideographic words. Writing ‘sources of support’ information sheet for participants.
- Started Lime Survey learning curve by creating online measurement instruments.
- Research presentation imminent!

## 2.4 April

- Various drafts of stimulus schedules to balance stimuli available, total number of exposures and organisation so that bias is not towards specific stimuli (See et al., 2009).
- Trying to avoid competition for participants with similar, potentially concurrent studies.
- Had a response from Patrick Onghena regarding  $p$  sensitivity I can expect in meta-analysis. Not yet resolved.
- Materials: Nick resolved my struggle finding STAI and PANAS instruments and showed me how to calculate RRS and PSWQ screening cutoffs. Started writing preparatory session protocol. Review of materials highlighted need for distraction procedure at the end of the preparatory session. Took advice from Miriam on using Lime Survey to administer the same survey multiple times to a participant. Decided to use tokens which meant more Lime Survey learning curve.
- Recruitment: Wrote draft of SONA recruitment advert.
- Ethics: Pre-submitted application and worked through Nick's feedback.

## 2.5 May

- Materials: Partial debrief in case procedure fails. Use GAD-7 instead of STAI. Add sad, depressed, anxious and worried items to PANAS. Do trait measures (RRS,PSWQ) before state measures (GAD-7,PHQ-9). Starting to balance stimuli properties (frequency, length etc.). Had to find an additional dataset for creating I-word pairs as MRC has no valence norms. Started task programming in OpenSesame.
- Pilot: PhD student piloted screening and preparatory session in exchange for doing their study. Nick piloted screening, I-word generation and dot-probe task. Need to handle generated proper nouns. I-word valence ratings a bit tricky.
- Assessment: Concluded from my inability to answer Fraser's question during presentation that there's more evidence *that* ABM works than *how* it works! Happy with poster submitted.
- No word on budget approval.
- Ethics: Submitted application. Re-read current MDC risk protocol procedure.

## 2.6 June

- Reduced I-words to 6 from 8 to ease generation and simplify stimulus allocation.
- Admin: £200 budget approved and collected. Getting up to speed with room booking arrangements in advance of pilot. Made arrangements for times during study when I and Nick will be away. Addressed minor issue in conditional ethical approval.
- Dot-probe: Removed timeout and incorrect response feedback. Corrected word sizes. Various fiddly operating-system software distribution issues. Considering loaning mice to people as Mac users will only have a trackpad, but rejected idea as too complicated and reverted to keyboard responses which is common in literature. Borrowed Mac from John Staplehurst for testing.
- Further tweaks to participant documents and email templates. Rewording instructions to balance getting genuine current concerns without participants having to reveal sensitive information. Participants have to complete 25 sessions (minimum data needed for analysis) for £10 then get £1 for each additional session.

- After some discussion, decided that I *would* use PHQ-9 rather than PHQ-8. I feel responsible for participants so want to leave suicidal ideation question in and be prepared to run risk protocol and have clinical cover in place when needed. Kim Wright can provide risk cover but advised adding BDI suicidal ideation question to Lime Survey as risk protocol trigger.
- Piloting: finding more versions of OSX which can't run OpenSesame, problems choosing I-word pairs, dot-probe data file upload issues (Lime Survey). Nick tested adjustment procedure to deal with illegal I-words, which adds 5-10 minutes to preparatory session.
- Created Windows and Mac software installation videos and uploaded to YouTube.
- Recruitment: Activated SONA advert. Looking for University mailouts, and departmental lists which are OK for an advert. Some suspended over the summer.

## 2.7 July

- Patrick Onghena didn't notice my supplementary question in April! Meta-analysis  $p$  sensitivity looks OK.
- Co-coordinating people available to provide clinical cover (especially over the summer) to coincide with participant preparatory sessions proving time consuming, labour intensive and frustrating.
- Recruitment a bit slow so have submitted updated ethics request to increase PHQ-8 to  $\leq 11$ . Nick (The Sorcerer) wrote most of the magic words to make this happen while the apprentice watched.
- Procedure: Running smoothly with first participants. Nick double checking my I-word pair matching. Having to deal with one or two tech support issues but they're getting resolved. First Mac users are getting the task running fine (worth the extensive testing!). A few problems with people attaching dot-probe data files but having them email these to me is fine as a workaround. Skipping sessions is common (reasons: life, Internet etc.) as expected but mostly the odd day here or there. One participant who was missing lots of consecutive sessions eventually dropped out. One participant withdrew after preparatory session but before starting daily sessions (sent support info and partial debrief). Managed to keep things going whilst away at PsyPAG but a bit draining sending out correct session reminders to multiple participants last thing at night. Have created a spreadsheet to keep track of where everyone is in their schedule. Now have  $\geq 10$  Ps that I proposed but keeping people in (and more in reserve) in lieu of dropout. Creating canned emails for milestones such as transition to ABM training.
- Admin: Submitted mitigation request as it looks like final starters won't end until very close to submission deadline.

## 2.8 August

- Analysis: Bulk of the code (perl/R) written to tidy and analyse data. Correlation analyses to see which PANAS supplementary items are worth keeping. Cronbach's tests for daily measures. Concluded that multiple baseline analysis wasn't possible because participants will complete different numbers of sessions. Clarification on appropriate SD for Cohen's  $d$  calculation. Descriptive stats.
- Commit history: <https://github.com/earcanal/dotprobe/commits/master>
- Reading: Need to do quite a lot in preparation for introduction and discussion. Did a second literature search and two rounds of pruning after running it past Nick. Current concerns (Klinger & Cox, 2011), worry (Borkovec, Robinson, Pruzinsky & DePree, 1983).
- Dissertation: Good decision to use LaTeX. A bit of a (re)learning curve but it's the easiest way of repeatedly running analyses and pulling output directly into the report. Nick looking over early drafts.

- Participants: Definitely need more motivation in phase B when the sessions get longer. One P opted to complete a session every 3 days (my suggestion) rather than dropout. Another decided to stop at session 25. Ps now completing the study so getting into the swing of running the final session and being prepared for risk protocol triggers with remote Ps. Payment process working fine. Paid one P who couldn't quite make it to 25 sessions even though I can't use their data.
- Admin: Mitigation approved.

## 2.9 September

- Analysis: Hacking SCVA to standardise y-axes and get multiple plots on the same graph. Generate tables for inferential stats. Final decision that randomisation tests should be 2-tailed. As last data is coming in the analyse/bug fix spiral is getting tighter.
- Reading: Re-read of Shon (2012) very worthwhile. Have adopted this process using Zotero features which is making the large reading task directed and enjoyable. Not really working from the papers identified in literature search. As I read and look over my results, I'm finding that I'm following up one or two papers around points that are emerging as being important. My conclusions are shifting a little the more I read and write. I think I'm able to read faster and more tactically now, partly out of necessity as I'm still finding things I wish I'd read much earlier. Re-reading key papers also important and useful. There are many things I missed or mis-understood on first reading. With hindsight I realise a little more reading and some more literature searches early on would have resulted in a much better research question. I read Cristea et al. (2015) six months before the debate between CBT and CBM landed properly!
- Dissertation: Good decision to use LaTeX. A bit of a (re)learning curve but it's the easiest way of repeatedly running analyses and pulling output directly into the report. Nick's comments on final draft useful for tidying up everything as far as the discussion. Structuring discussion using Nick's advice and themes I thought emerged seemed fairly successful. Numerous reading/writing cycles required to complete it. Marking up a written copy was definitely the most effective way of touching up the final draft.

## References

- Almeida, O. P., MacLeod, C., Ford, A., Grafton, B., Hirani, V., Glance, D. & Holmes, E. (2014). Cognitive bias modification to prevent depression (COPE): study protocol for a randomised controlled trial. *Trials*, 15(1), 282.
- Borkovec, T. D., Robinson, E., Pruzinsky, T. & DePree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour research and therapy*, 21(1), 9–16.
- Bulté, I. & Onghena, P. (2008, May). An R package for single-case randomization tests. *Behavior Research Methods*, 40(2), 467–478. doi:10.3758/BRM.40.2.467
- Bulté, I. & Onghena, P. (2012). When the truth hits you between the eyes: A software tool for the visual analysis of single-case experimental data. *Methodology-European Journal of Research Methods for the Behavioral and Social Sciences*, 8(3), 104–114.
- Bulté, I. & Onghena, P. (2013, November). The single-case data analysis package: Analysing single-case experiments with R software. *Journal of Modern Applied Statistical Methods*, 12(2).
- Citron, F. M., Weekes, B. S. & Ferstl, E. C. (2014, March). How are affective word ratings related to lexicosemantic properties? Evidence from the Sussex Affective Word List. *Applied Psycholinguistics*, 35(2), 313–331.
- Clore, G. L. & Huntsinger, J. R. (2007, September). How emotions inform judgment and regulate thought. *Trends in Cognitive Sciences*, 11(9), 393–399. doi:10.1016/j.tics.2007.08.005
- Conway, M. & Pleydell-Pearce, C. (2000, April). The Construction of Autobiographical Memories in the Self-Memory System. *Psychological Review*, 107(2), 261–288. Retrieved May 4, 2014, from <http://libezproxy.open.ac.uk/login?url=http://search.ebscohost.com/login.aspx?direct=true%5C&db=edswsc%5C&AN=000087493700002%5C&site=eds-live%5C&scope=site>



- Cristea, I. A., Kok, R. N. & Cuijpers, P. (2015, January). Efficacy of cognitive bias modification interventions in anxiety and depression: meta-analysis. *The British Journal of Psychiatry: The Journal of Mental Science*, 206(1), 7–16. doi:[10.1192/bjp.bp.114.146761](https://doi.org/10.1192/bjp.bp.114.146761)
- Csikszentmihalyi, M. & Larson, R. (1987, September). Validity and reliability of the Experience-Sampling Method. *The Journal of Nervous and Mental Disease*, 175(9), 526–536.
- Debeer, E., Hermans, D. & Raes, F. (2009, November). Associations between components of rumination and autobiographical memory specificity as measured by a Minimal Instructions Autobiographical Memory Test. *Memory*, 17(8), 892–903. doi:[10.1080/09658210903376243](https://doi.org/10.1080/09658210903376243)
- Debeer, E., Raes, F., Williams, J. M. G., Craeynest, M. & Hermans, D. (2014, April). Operant conditioning of autobiographical memory retrieval. *Memory*, 22(3), 171–183. doi:[10.1080/09658211.2013.774419](https://doi.org/10.1080/09658211.2013.774419)
- Joormann, J., Dkane, M. & Gotlib, I. H. (2006). Adaptive and maladaptive components of rumination? Diagnostic specificity and relation to depressive biases. *Behavior Therapy*, 37, 269–280.
- Klinger, E. & Cox, W. M. (2011). Motivation and the goal theory of current concerns. In W. M. Cox & E. Klinger (Eds.), *Handbook of Motivational Counseling* (pp. 1–47). John Wiley & Sons, Ltd.
- Koster, E. H. W., De Lissnyder, E., Derakshan, N. & De Raedt, R. (2011, February). Understanding depressive rumination from a cognitive science perspective: The impaired disengagement hypothesis. *Clinical Psychology Review*, 31(1), 138–145. doi:[10.1016/j.cpr.2010.08.005](https://doi.org/10.1016/j.cpr.2010.08.005)
- MacLeod, C. & Mathews, A. (2012). Cognitive bias modification approaches to anxiety. *Annual Review of Clinical Psychology*, 8, 189–217. doi:[10.1146/annurev-clinpsy-032511-143052](https://doi.org/10.1146/annurev-clinpsy-032511-143052)
- Martin, L. L. & Tesser, A. (1996). Some ruminative thoughts. In *Ruminative thoughts* (pp. 1–47). Advances in social cognition, Vol. 9. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Moberly, N. J. & Watkins, E. R. (2008, May). Ruminative self-focus and negative affect: An experience sampling study. *Journal of Abnormal Psychology*, 117(2), 314–323. doi:[10.1037/0021-843X.117.2.314](https://doi.org/10.1037/0021-843X.117.2.314)
- Moberly, N. & Watkins, E. (2010). Negative affect and ruminative self-focus during everyday goal pursuit. *COGNITION & EMOTION*, 24(4), 729–739. Retrieved October 7, 2014, from <http://libezproxy.open.ac.uk/login?url=http://search.ebscohost.com/login.aspx?direct=true%5C&db=edswss%5C&AN=000277583900012%5C&site=eds-live%5C&scope=site>
- Nolen-Hoeksema, S. (1991, November). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100(4), 569–582. doi:[10.1037/0021-843X.100.4.569](https://doi.org/10.1037/0021-843X.100.4.569)
- Nolen-Hoeksema, S., Wisco, B. E. & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, (5), 400.
- Onghena, P. & Edgington, E. S. (2005). Customization of pain treatments: Single-case design and analysis. *Clinical Journal of Pain*, 21(1).
- Papageorgiou, C. & Wells, A. (2004, February). *Depressive Rumination: Nature, Theory and Treatment*. John Wiley & Sons.
- Roberts, H., Watkins, E. & Wills, A. (2013, December). Cueing an unresolved personal goal causes persistent ruminative self-focus: An experimental evaluation of control theories of rumination. *Journal of Behavior Therapy and Experimental Psychiatry*, 44(4), 449–455.
- Schoofs, H., Hermans, D., Griffith, J. W. & Raes, F. (2013, February). Self-discrepancy and reduced autobiographical memory specificity in ruminating students and depressed patients. *Cognition & Emotion*, 27(2), 245–262. doi:[10.1080/02699931.2012.703640](https://doi.org/10.1080/02699931.2012.703640)
- See, J., MacLeod, C. & Bridle, R. (2009, February). The reduction of anxiety vulnerability through the modification of attentional bias: A real-world study using a home-based cognitive bias modification procedure. *Journal of Abnormal Psychology*. Special Section: Cognitive Bias Modification. 118(1), 65–75. doi:[10.1037/a0014377](https://doi.org/10.1037/a0014377)
- Shon, P. C. H. (2012, March). *How to Read Journal Articles in the Social Sciences: A Very Practical Guide for Students*. SAGE.
- Smith, J. M. & Alloy, L. B. (2009, March). A roadmap to rumination: A review of the definition, assessment, and conceptualization of this multifaceted construct. *Clinical Psychology Review*, 29(2), 116–128. doi:[10.1016/j.cpr.2008.10.003](https://doi.org/10.1016/j.cpr.2008.10.003)
- Tester-Jones, M. (2014). The role of rumination in the relationship between postnatal depressive symptoms and maternal attunement. Ph.D. Thesis.
- Thomsen, D., Tonnesvang, J., Schnieber, A. & Olesen, M. (2011, June). Do people ruminate because they haven't digested their goals? The relations of rumination and reflection to goal internalization and

- ambivalence. *MOTIVATION AND EMOTION*, 35(2), 105–117. Retrieved October 18, 2014, from <http://libezproxy.open.ac.uk/login?url=http://search.ebscohost.com/login.aspx?direct=true%5C&db=edswss%5C&AN=000290546500001%5C&site=eds-live%5C&scope=site>
- Watkins, E. R. (2008, March). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, 134(2), 163–206. doi:[10.1037/0033-2909.134.2.163](https://doi.org/10.1037/0033-2909.134.2.163)
- Watkins, E., Moulds, M. & Mackintosh, B. (2005, December). Comparisons between rumination and worry in a non-clinical population. *Behaviour Research and Therapy*, 43(12), 1577–1585.
- Watkins, E. & Nolen-Hoeksema, S. (2014, February). A habit-goal framework of depressive rumination. *Journal of Abnormal Psychology*, 123(1), 24–34.