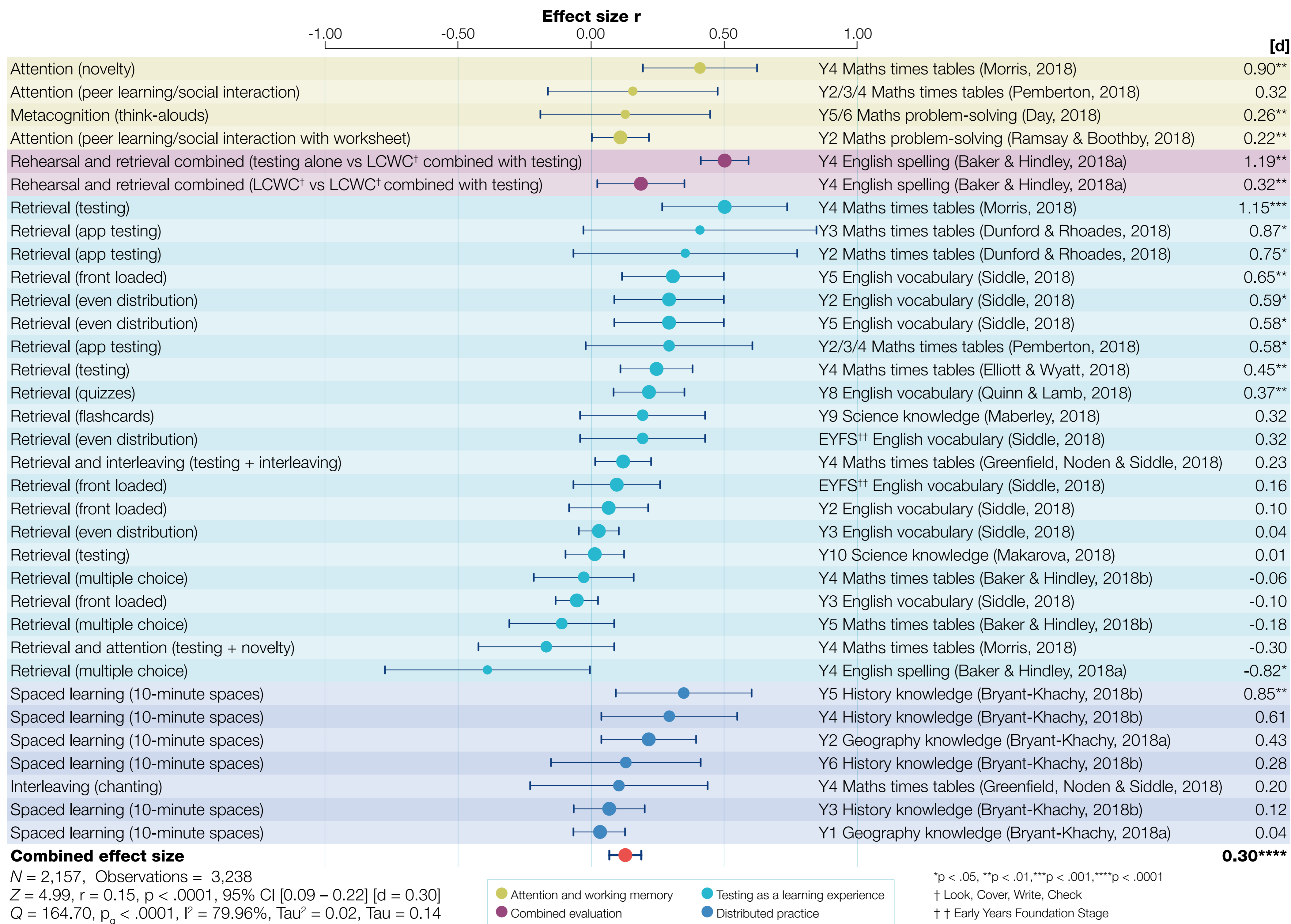


META-ANALYSIS OF TEACHER FINDINGS

Figure 1 shows a forest plot of 34 results from trials and year group replications completed by teachers who were part of the Neuroscience-Informed Teacher-Led RCTs project (N = 2,157). The plot was constructed using spreadsheets from Suurmond, van Rhee and Hak (2017). Meta-analysis was carried out using a random effects model (Borenstein, 2009). Treatment windows were short, varying from single lesson trial designs to studies which took place over a period of 42 days (inclusive). Teachers chose the content for their studies from Churches, Dommert and Devonshire (2017). For a full discussion of the project and results, see Churches et al. (2018, *in press*).

Figure 1. Effect sizes and 95% confidence intervals



SUMMARY OF RESULTS

Overall, neuroscience-informed pedagogy had positive effects in a relatively short treatment period [ca. 1–6 weeks] (r = 0.15, p < .0001), with an effect size equivalent to Cohen's d = 0.30. 85.3% of the intervention effects were positive. However, retrieval practice had differential effects. Makarova (2018) suggests prior attainment might mediate outcomes. Baker and Hindley (2018a) showed that, for the learning of new spellings, LCWC[†] (a simple strategy using multiple rehearsal in working memory) was better than multiple choice testing alone. However, combining retrieval practice with LCWC produced the strongest positive outcomes. As expected (see Dommert, Devonshire and Churches, 2018), some science of learning translated pedagogy will need extensive replication and study in order to establish which ways of using the laboratory evidence work best for which pupils, in which context and in what subject areas. Multiple planned replication of teacher-led RCTs has much potential as a large-scale evaluation tool, combining high levels of mundane realism with strong internal validity and the ability to build cost-effective large sample sizes for meta-analysis.

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