INTRODUCTION

Background
- When more information is present than can be remembered, performance can be optimised by prioritising the more valuable information. This has been observed in the form of a memory advantage for high value items [1, 2] and has recently been extended to long-term memory for item-colour bindings [3], but the underlying mechanisms remain unclear.
- High-value items are engaged with via deeper strategic encoding [4]. However, it may be more difficult to apply this strategic approach when encoding the binding of item and colour. Instead, high-value bindings may be engaged with via spontaneous verbal rehearsal.

Aim
- To explore what type(s) of encoding strategy (maintenance rehearsal vs. elaborative rehearsal) underlie the value effect on item-colour binding memory.

METHODS

Design
2 (value: high, low) × 3 (strategy: no instruction, verbal rehearsal, association) within-subject design.

Participants
Experiment 1: N = 29 (20-23 years, M = 21.1 years); Experiment 2: N = 29 (18-22 years, M = 19.1 years).

Procedure
- Study-immediate test ➔ Filler task ➔ Delayed test

Each item was allocated with either a low value (1 point) or a high value (10 points). The goal was to remember the items and their colours to get as many points as possible. Participants were instructed to use different strategies in different blocks.
- No instruction: no specific strategy instruction.
- Verbal rehearsal: repeat out loud, e.g., grey shoe, grey shoe.
- Association: build an association, e.g., the shoe is grey because I imagined the shoe walking on the street and the street is grey.

RESULTS

Experiment 1 (simultaneous)

Immediate test
- Main effect of value ($p < .05$, $\eta^2_p = 0.19$, $BF_{10} = 316.36$).
- Main effect of strategy ($p < .001$, $\eta^2_p = 0.34$, $BF_{10} = 834.22$; A > NI > VR).

Delayed test
- Main effect of value ($p < .05$, $\eta^2_p = 0.15$, $BF_{10} = 1.94$).
- Main effect of strategy ($p < .001$, $\eta^2_p = 0.38$, $BF_{10} > 1000$; A > NI > VR).

- Maintenance rehearsal and elaborative rehearsal can both contribute to the value effect.
- Simultaneous presentation-flexibly allocate attention (spend more time on and/or restudy more often for high value items). How will the value effects vary when the flexibility of allocating attention is reduced (i.e., sequential presentation)?

Experiment 2 (sequential)

Immediate test
- Main effect of value ($p < .05$, $\eta^2_p = 0.20$, $BF_{10} = 27.96$).
- Main effect of strategy ($p < .001$, $\eta^2_p = 0.29$, $BF_{10} > 1000$; A > NI = VR).
- Interaction ($p < .05$, $\eta^2_p = 0.15$, $BF_{10} = 0.64$; value effect in NI and VR, not in A).

Delayed test
- Marginal effect of value ($p = .057$, $\eta^2_p = 0.12$, $BF_{10} = 0.37$).
- Main effect of strategy ($p < .001$, $\eta^2_p = 0.34$, $BF_{10} > 1000$; A > VR > NI).

- Value effect in VR—the effect in NI may be due to higher degree of maintenance rehearsal for high-value items.
- Using A across high and low value items abolished the value effect—the effect in NI may be due to more elaborative encoding for high-value items.
- A trend in NI in the delayed test—participants may have encoded a small proportion of high-value items elaboratively, but mostly they encoded high-value items via more active maintenance rehearsal.

REFERENCES

SUMMARY
- Maintenance rehearsal and elaborative rehearsal are both possible involved in the value effect on item-colour binding memory, with maintenance rehearsal being the primary strategy.
- Directing attention towards more valuable information and encoding them elaboratively may improve memory performance most effectively.