

Verbal working memory and foreign language learning in English primary schools: Implications for teaching and learning

What this research was about and why it is important

This chapter sought to investigate how individual differences influence language learning outcomes and therefore have implications for teaching. In particular the role of verbal working memory - the ability to temporarily store and reproduce novel strings of sounds was explored. The investigation involved a teacher / researcher who implemented an oracy and literacy teaching approach in two English primary school classrooms (45 children in total). The researcher collected quantitative data on French foreign language (FL) outcomes and she also recorded data relating to first language (L1) literacy, verbal working memory. Qualitative data were also obtained in the form of classroom recordings and children's weekly work. Findings showed that verbal working memory influences both spoken and written FL outcomes across the FL achievement range.

What the researcher did

- The teacher/researcher taught a programme of French oracy and literacy for 24 weeks in two primary school classrooms (learners aged 9-11).
- The teacher/researcher measured the children's progress in French oracy and literacy on four key FL outcomes. These were FL oracy: FL receptive vocabulary and FL elicited imitation. For FL literacy the teacher/researcher measured FL reading aloud and FL reading comprehension.
- The teacher/researcher collected background data such as: L1 literacy (reading age and spelling age), National Curriculum levels for reading and writing in English, and verbal working memory data measured through a non-word repetition test.
- The teacher/researcher also collected weekly written work to see how the children's writing was developing and classroom recordings documented specific aspects of the learning such as: the learning of French sound/spelling links and the learning of French core vocabulary.
- The children also produced, as part of the learning programme, group video documentaries where they spoke about the topic animals and insects; and individual book chapters where they wrote independently about a particular insect or animal (a snake, a dolphin, an ant or a bear).
- Children were tested at the beginning of the teaching programme (pre-test) and at the end (post-test). They were also tested seven weeks after the teaching finished (delayed post-test) to see whether any learning was long-term.

What the researcher found

- Scores in verbal working memory (VWM) and each FL construct (receptive vocabulary, elicited imitation, reading aloud and reading comprehension) increased in a similar pattern at each test time.
- Examination of two participants' scores showed that despite the influence of VWM on outcomes both high VWM and low VWM demonstrated progress in all areas after the teaching programme. In other words, whilst VWM influenced outcomes, low VWM learners still made progress in the FL.
- Weekly French spelling data (written work) showed that the higher VWM learner could reproduce written words more successfully very early into the teaching and learning programme. The lower VWM learner was initially less able to reproduce French words/spellings and tended to rely on L1 sound/spelling links or wild forms which represented neither the L1 or the FL forms.
- Both learners made progress, although apparently at different rates, and both learners made written errors which were deemed part of the FL learning process.

Things to consider

- It is important to recognize that some individual differences, e.g. VWM can be linked to progression in FL learning.
- It is equally important that such evidence does not become deterministic as learners with lower scores in such individual differences can and do make progress in FL oracy and literacy.
- It is possible, although beyond the scope of this study to prove definitively, that presenting the written word could act as a support for learners with lower VWM who could struggle to recognize and store strings of FL sounds.
- It should also be considered that VWM scores and their influence might have interacted with L1 literacy scores (reading age and spelling age) which were collected but not evaluated by this paper.
- The VWM test scores which were obtained through a standardized test did not successfully differentiate between all learners as several participants scored the maximum on the test.